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Paper TRADE JOURNAL

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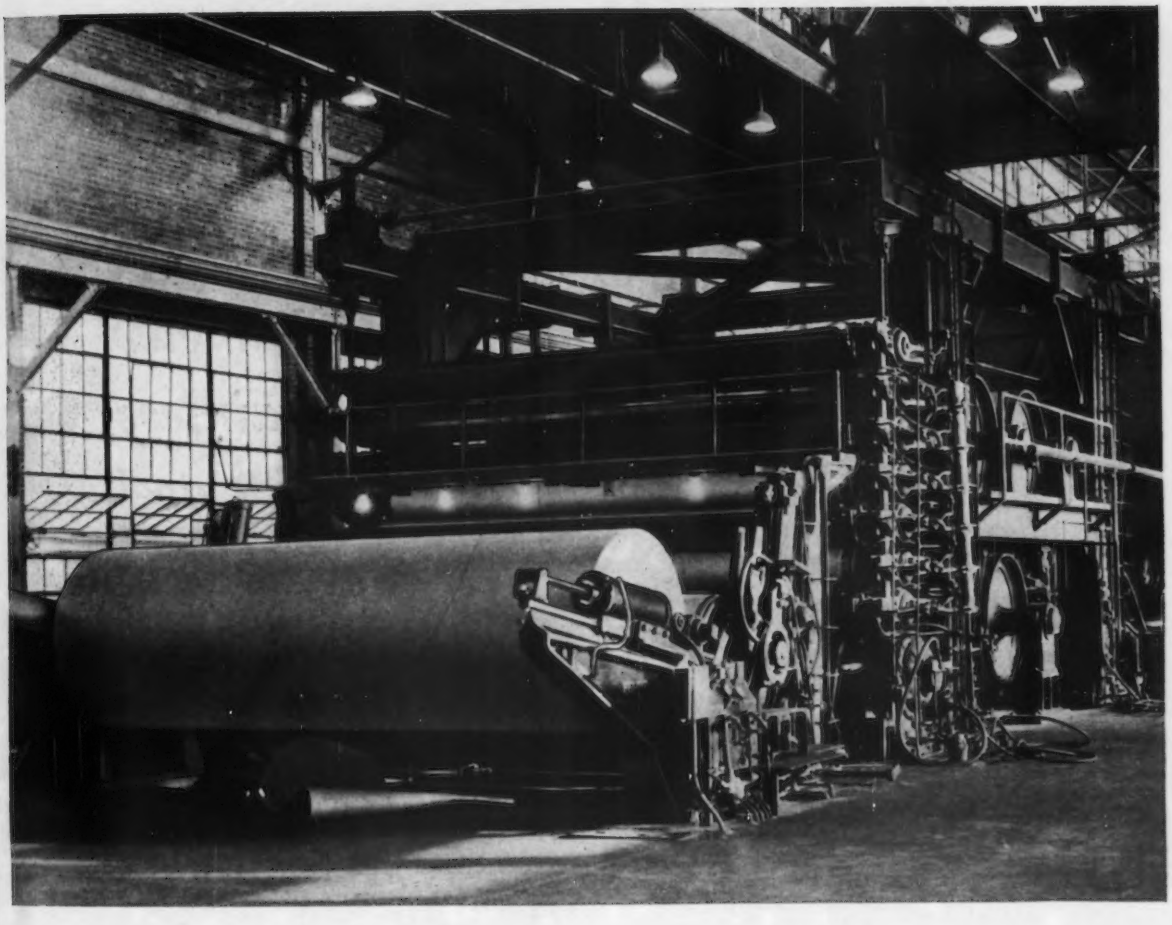

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Paper TRADE JOURNAL

VOL. 134 MAY 23, 1952 No. 21

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Domestic Newsprint Consumption

Daily newspapers reporting to the American Newspaper Publishers Assn. consumed 393,470 tons of newsprint in April, 1952, compared with 410,723 tons in April, 1951, and 403,801 tons in April, 1950. This was a decrease under April, 1951, of 4.2 percent and a decrease under April, 1950, of 2.6 percent. There were 4 Sundays in April, 1952, and 5 Sundays in April, 1951 and 1950.

Stocks of newsprint on hand and in transit at the end of April, 1952, were 41 days' supply for the average of all daily newspapers reporting to the ANPA. This is a decrease of 1 day's supply as compared with the end of March, 1952. There were 31 days' supply at the end of April, 1951.

The total estimated newsprint consumption in the United States for April, 1952, was 524,627 tons which includes all kinds of uses of newsprint. For the first four months of 1952 it is estimated at 1,982,231 tons. For the first four months of 1952 the reporting newspapers used 1,486,673 tons of newsprint, a decrease of 0.04 percent under the first four months of 1951 and an increase of 0.5 percent over the first four months of 1950.

REMEMBER THESE DATES

JUNE 6: Miami Valley Div. of the American Pulp and Paper Mill Superintendents Assn., Orr Felt & Blanket Co., Piqua, Ohio.

JUNE 6-7: The Paper and Twine Assn., Annual Meeting, Nippersink Manor, Genoa City, Wis.

JUNE 17-19: American Pulp and Paper Mill Superintendents Assn., 33rd Annual Convention, Book-Cadillac Hotel, Detroit, Mich.

JUNE 18-20: Canadian Pulp and Paper Assn., Technical Section, Annual Meeting, Murray Bay, Que., Canada.

JUNE 19-21: Empire State Section of TAPPI and the Niagara Branch of Tech. Section, Canadian Pulp and Paper Assn., Joint Meeting, General Brock Hotel, Niagara Falls, Ont., Canada.

JUNE 20-21: Maine-New Hampshire Section, TAPPI, The Belgrade Hotel, Belgrade Lakes, Maine.

JUNE 23-25: Forest Products Research Society, Annual Meeting, Milwaukee, Wis.

JUNE 23-27: American Society for Testing Materials, Annual Meeting, 15th Anniversary, Hotel Statler, New York, N. Y.

SEPT. 9-13: Seventh National Chemical Exposition, Chicago, Ill.

SEPT. 18-21: Northeastern Div., of the American Pulp and Paper Mill Superintendents Assn., Poland Spring House, Poland Spring, Maine.

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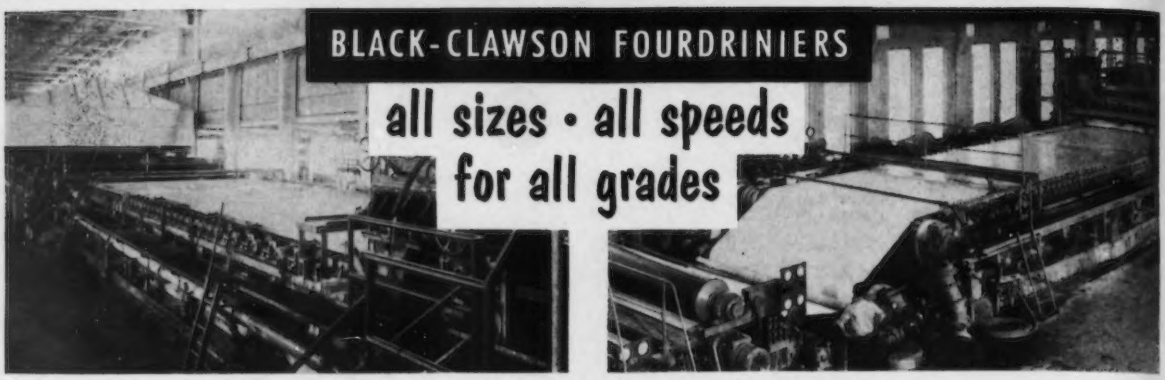

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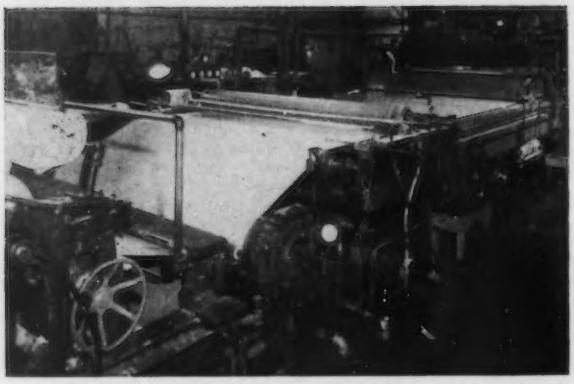

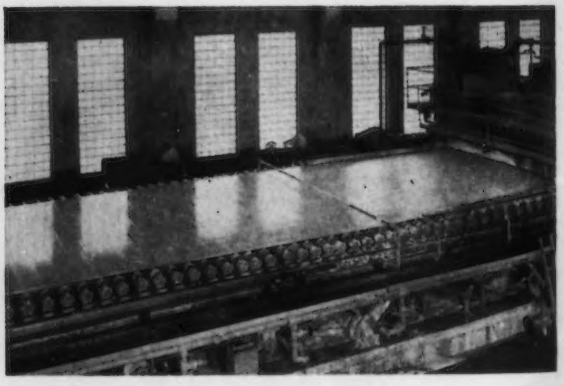

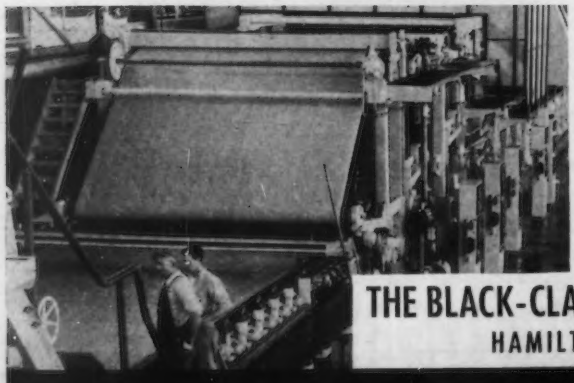

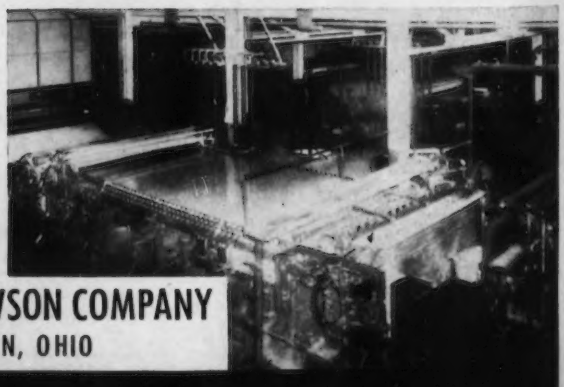

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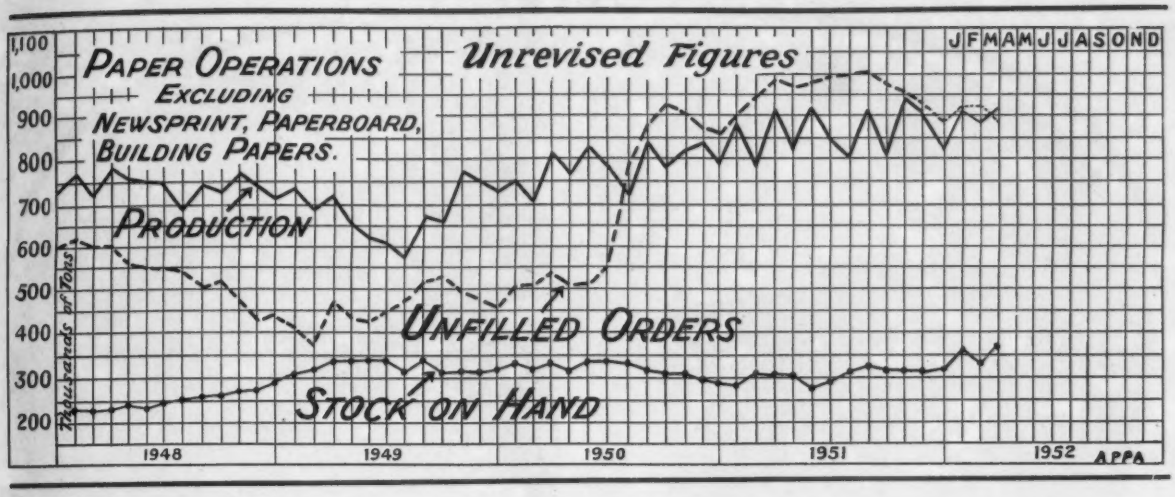
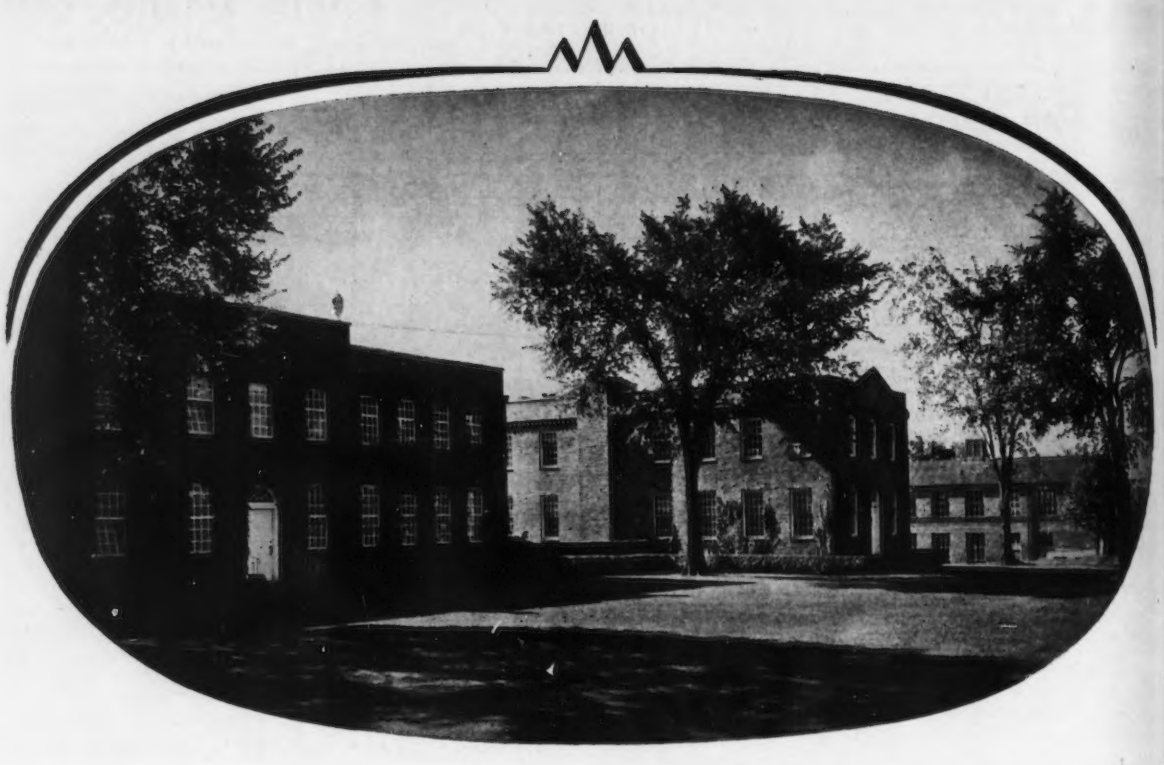


Brief of Important Figures

Source	Production	WEEK ENDING May 10, '52	Apr 12, '52	May 12, '51
APPA	Paper Production Percent Capacity[3]	91.2	91.7	102.7
	Unbl. Kraft Paper Production Percent	81.0	95.5	96.1
NPA	Paperboard Operating Ratio Percent Inch Hours	81	81	104
		Mar. 1952	**Feb. 1952x**	**Mar. 1951**
APPA	Paper Production* (Except Newsprint and Building Papers) ....Tons	904,000	865,000	913,000
	New Orders ....Tons	859,000	845,000	958,000
	Unfilled Orders ....Tons	874,000	907,542	980,880
	Shipments ....Tons	889,000	854,392	916,000
		Apr. 1952	**Mar. 1951**	**Apr. 1951**
NPA	Paperboard Production ....Tons	1,002,866	813,744	1,006,972
	New Orders ....Tons	1,049,281	844,303	956,085
	Unfilled Orders ....Tons	417,564	380,443	646,878
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Manufactures Total Index	228	226	228
	Durable Mfg. Index	281	278	268
	Nondurable Mfg. Index	186	184	196
	Chemical Products Index	298	301	291
	Mfg. Food Products Index	149	152	149
	Printing and Publishing Index	175	170	176
ODC	Magazine Advg.-Printer's Ink Index	369	379	345
	Retail Sales Combined Adjusted Index	382.6	381.6	381.5
	Drug Index	258.3	253.4	255.7
	General Merchandise Group Index	407.6	405.7	414.5
	Grocery and Combination Index	447.0	453.4	423.1
	Prices Index			
BLS	Consumers Price Index[1]	187.9	189.1	183.8
	Wholesale all Commodities[4]	112.6	113.0	116.5
	Wholesale Processed Foods	109.7	110.1	112.9
	Commodities other than Farm Products and Foods[4]	114.3	114.3	117.2
	Wholesale Pulp, Paper[4] and Allied Products	118.4	118.2	120.5
	Purchasing Power of Dollar, Consumers Prices[1]	53.2	52.9	54.4
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	130.9	132.9	128.5
	Unemployment Compensation Initial Claims (M)	890	1,382	770
	Miscellaneous Carloadings-Thousands of Cars	1,463	1,405	1,373
	Electric Output (Million KW hr.)	36,768	39,710	33,102
PTJ	Average 32 P & P Common Stocks as of May 17	$34.15	$34.58	$38.47

[1] 1935-39 = 100 Unadjusted Index.
[3] New 6-7 day basis.
[4] New Index 1947-1949 = 100.
* For details see APPA Monthly Statistical Summary—March 1952 Estimated Figures.
° Latest Month Available on Request.
x Revised figures.



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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, May 21, 1952.

The paper market and its affiliated raw material sources are settling into an early midsummer's quiet. With the dip in book paper demand which has come sooner than had been hoped, the industry output is moving back to a lower level of demand than it has experienced since early 1950.

Opinions differ as to the time when a pickup can be expected, as also to the degree. The consensus is, however, that none will become apparent until early Fall by which time consumers will not only be assured that prices are not going to drop but they also will have to buy for holiday and winter supplies.

The industry is more optimistic than otherwise. Demand is still at a good level though it lacks pep. Sought by all segments of the industry are ingenious ways of using paper that will stimulate consumer buying "in a big way."

Raw Materials Supply Easy

Casein.—Domestic output for the month of March was reported by the Bureau of Agricultural Economics to be the lowest in 30 years. Output of 950,000 pounds was down 56 percent from 1951's month, and was 45 percent below the five-year average for the month. Cumulative production for the year's first quarter showed a decline of 54 percent from a year ago.

Prices for the month of March at 25/28c were down 1c from February and were the lowest since mid-1950.

To at least some in the trade, U. S. casein production is a vanishing industry, made so by the high support levels for milk powder. In other words, it is no longer possible with a support level of 17c a lb. for powder to produce casein for less than 41c, a price which is out of industrial range. There is still some demand for domestic product for special purposes. For papermaking and other industrial processes, such a price could not be considered.

The high-quality of New Zealand's product at 20c offers marked competition to the domestic product, and is gaining wide acceptance here. Regular tonnages are reaching this market, and the price is somewhat firmer.

Supply of the Argentine product is abundant to the relatively quiet demand. In the opinion of some, overemphasis has been given to the size of the stocks in the Argentine, with the figure placed at 20 to 25,000 tons. Market sources place this figure as nearer 15,000 tons, and the normal stock for this time of the year as 8,000 to 10,000 tons. In view of the light industrial demand here and abroad, this quantity is still a lot of casein. Price is 17/18c, New York.

Offers of other imported grades are light. It is that likely in view of the drop in price from last year's highs that this season's production will be much less.

Which is to say that last year's high prices were responsible for the quantities of casein which were made in Europe. Incentive is gone with the lower price, and much smaller amounts will be seeking a market here.

Limited stocks of the French product—described as variable in quality—range around 16/17c. Good quality Danish is priced at 19c, though some in the mills report difficulty in its processing, due, in the opinion of others, to either lack of technical adjustment from the Argentine product to Danish or, possibly, to a mixing of grades.

Opinions are mixed as to demand. Some see no change and feel no improvement is likely until inventory positions are adjusted and market demand for paper picks up. Others speak of an appreciable improvement that is more than a spurt in buying, and which comes from paper mills as well as from the paint industry.

End of month stocks at the close of March were reported at 3.8 million pounds, the highest for March since 1944, and 69 percent more than a year ago.

Inventories in the hands of consumers are said to be low, so that any pickup in paper production would mean the acquisition of large casein stocks. Currently they are bought hand-to-mouth. To such limited demand, there is abundant supply.

Chlorine.—Easing of demand for chlorine has eased the prolonged tight supply of this chemical. Due to cutbacks in output, mills are not requiring full contractual amounts. Spot quantities are increasingly available.

Pulp Supply and Stocks Mount

Details of U. S. pulp production and purchases, consumption and inventories by grades are provided in *Table 1*.

These are the figures which tell the story of market shifts; of the anxiety of producers to move their output; of the desire of mills to assure themselves of a steady supply of good domestic grades on long-term contracts.

In view of receding paper and board output to more normal levels of near 80/85 percent of rated capacity, the market becomes increasingly competitive. No major change in pulp prices is now indicated for the third quarter in view of the high inventory position and imminent summer doldrums.

—E.P.N.

Paperboard Production (Tons)*

	May 10 1952	May 3 1952	May 12 1951
Production	206,350	199,614	252,035
New Orders	204,041	256,873	203,058
Unfilled Orders	412,863	417,564	732,449
% of Activity	81	82	104

* Source: National Paperboard Assn.

Table 1

WOODPULP: U. S. PRODUCTION, CONSUMPTION, INVENTORIES, MARCH, 1952

(Tons of 2,000 pounds)

Grade	U. S. Production		Purchased Imports			Consumption in paper & bd. manuf.	End of Month Inventories[1]			
	Tons	% of Base‡	Canada	Europe	Exports		Pulp Mills	Integ. Mills	Partially integ.	Non-integ.
Total	1,449,740	87.4	84,554	25,715	21,091	1,504,473	112,168	157,052	217,524	242,237
Spec. Alpha & Dissolving	59,541	93.7	n.a.	n.a.	n.a.	8,108	14,060	n.a.	n.a.	14,160
Sulfite, Total	216,201	87.7	37,146		n.a.	264,457	25,886	38,454	100,041	101,551
Blchd	153,773		14,598	6,523		172,187	14,147	13,105	41,400	59,716
Unblchd.	62,428		22,548	4,762		92,270	11,739	25,349	59,641	41,835
Sulfate, Total	762,496	91.6	28,778	11,386		801,763	26,012	77,760	74,038	96,671
Blchd.	186,059		18,511	3,113	n.a.	214,771	12,138	57,727	37,627	36,412
Semiblchd.	24,977		525	n.a.		27,573				5,168
Unblchd.	551,460		9,742	1,692	10,087	559,419	13,874	20,033	36,411	55,091
Soda	39,136	71.3	2,764	n.a.	n.a.	41,021	1,945	2,237	4,825	7,977
Groundwood	212,284		14,059	280		227,927	37,234	31,385	31,495	17,881
All Others	160,082	76.7	n.a.	n.a.		161,197	n.a.	7,216	7,125	3,997

Based on Bureau of Census Figures.
* Revised. [1] Preliminary. n.a. Not Available.
‡ Production base for the month is a calculated figure based on the highest average daily production of each mill in any 3 months of census record, multiplied by the number of working days in the month covered by this report. Sundays and 3 annual holidays are not considered working days.

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Canadian Newsprint Up Ten Dollars

M. L. Schwartz

As generally anticipated in Canadian pulp and paper industry for some time, newsprint price for export has been increased by $10 a ton and this has been approved by the Canadian Government, though sales to Canadian publishers will not be affected by this boost.

The higher price for newsprint has been allowed due to the fact that the relative exchange position of United States and Canadian dollars has caused newsprint producers in this country to lose the previous benefit of 10 percent premium and on top of that almost 2 percent above par position of the exchange has caused lower returns to the Canadian newsprint shippers who sent last year approximately 89 percent of their production in this country to the United States market.

In addition, it is learned in official quarters that rising cost of production for the Canadian newsprint mills has also been a reason for this latest increase in price. Last July, newsprint prices were raised $10 a ton in both Canada and United States, causing newsprint to be sold in Canada for as much as $112 a ton and up to $116 a ton in New York (U. S. funds).

However, it is not denied here that this latest increase will raise some arguments across the international border because it is recalled that when the last increase was announced, there were clamors for an inquiry into the pulp and paper industry to discover why prices were increased. Similar trouble seems to be anticipated. But it is emphasized that, in reality, there is no rigid price control over newsprint in Canada, though under federal government's emergency powers, legally a newsprint administration does exist with power to cut or boost prices as the Government deems necessary or advisable. In the present instance, it is understood that the Government has deemed it proper not to interfere with the proposed increase in price by the producers.

It is also learned from official sources that Canadian newsprint producers have been confronted with steadily rising costs of production ever since the last price boost was announced about ten months ago, though United States importers of such products are not fully aware of the extent of these rising costs. Officials state that the latest nationwide survey by the Canadian Government shows, for example, that pulp and paper mill owners have had to pay higher labor costs at a time when sales of newsprint actually brought lower net returns.

In fact, officials say, as recent as March 1 the Canadian pulp and paper mills paid an average weekly salary and wage to workers of $73.32 as compared with $73.07 at February 1 and only $64.48 at March 1 a year ago to the 54,006 employes reported engaged in such Canadian operations. On an index basis of 1939 being 100, payrolls in such mills jumped up to 456.6 at March 1 this year as against 453.7 at February 1 and merely 366.2 at March 1 a year ago. Then again, of the 48,457 employes recorded as wage-earners in these pulp and paper mills at March 1 this year, the average weekly wages increased to $70.36 as against only $62.05 at March 1 last year which is considered in industrial circles as quite an increase for the 12-month period. The average hourly earnings moved up to 149.7 cents at March 1 this year compared with 149.4 cents at February 1 and 128.2 cents last year at March 1. Hours worked per week, however, dropped to 47 at March 1 this year as against 47.3 at February 1 and 48.4 at March 1 a year earlier.

Furthermore, pulp and paper mill operators are now confronted with a new wave of higher wage demands from workers who want even more pay for their services. There have also been indications that the mills may have to pay more for materials entering into the production of newsprint, including chemicals and mill supplies, pulpwood, etc. Transportation costs are more than likely to increase. Taxes are rising. These mean that newsprint producers are in no position to accept a "cut" in prices in face of these rising costs of operation, with the sudden loss of the 10 percent premium being, in actuality, a loss in net returns for the newsprint producers.

Then again, capital expenditures of the pulp and paper industry of Canada increased during 1951 to $82.9 millions as compared with $62.5 millions in 1950, without including capital expenditures made on the woodlands, nor, of course, expenditures involved for maintenance and renewals.

Canada's pulp and paper industry stands first in employment amongst all industries, first in total wages paid, first in export values, first in value of production, and first in capital invested, so that the Government is most unlikely to allow this industry to be thrown out of balance, from a financial and economic viewpoint, by permitting it to attempt operations upon a risky or shaky foundation of getting steadily diminishing net returns at a time of steadily rising costs of operation. This accounts for the approval of the Government for this latest increase in newsprint price, especially since, as the Canadian Pulp and Paper Assn. has stressed, "fluctuations in the national income closely parallel variations in the pulp and paper production," with the association adding significantly that "ups and downs in Canadian exports also closely follow the trend of pulp and paper exports."

"Prosperity in the newsprint industry and in Canada are inseparable," the association states, pointing out that "pulp and paper is the largest industrial buyer of goods and services" in Canada.

Another important point which is not always understood in United States is that the pulp and paper companies of Canada represent the savings of thousands of Canadians who, over the years, have received few dividends. Indeed, the pulp and paper industry has made its own way against world competition without any subsidies, much unlike many other important industries in Canada and United States. The pulp and paper industry has not benefited from any Canadian Government policies in regard to floor prices, guarantees or any similar forms of financial assistance which have become so common in other major industries even though Canadian investors have been disappointed at times, especially when it is considered that the investment in this industry is estimated to exceed $1¼ billion in plants which cannot be moved nor readily converted to other uses.

(Ed. Note—With all the fury, up to press time no Canadian company has announced an increase.)

St. Regis-Kalamazoo Modernizes

The Kalamazoo paper mill of St. Regis Paper Co. provides a good example of rehabilitation. Acquired late in 1946, the mill brought to the company a line of commercial printing grades of papers that considerably widened the range of its Printing, Publication and Converting Paper Division.

Since that time, efforts of the management of the mill have been concentrated on physical rehabilitation, personnel organization, equipment and sales. Grades have been eliminated and others adopted, with a concentration on uniformity and quality improvement.

New cooking methods have been adopted; screening and washing methods changed and new dirt removal equipment added. All of which have resulted in a lower cost of raw material and a greatly improved pulp. Three paper machines have been reconditioned and one rebuilt, with five machines now in production.

High up in the modernization program at this mill have been developments in the coating division. Here there has been a partial replacement of brushes with modern type coaters, with an aim toward constant improvement in quality to satisfy customer demand and to keep pace with printing developments.

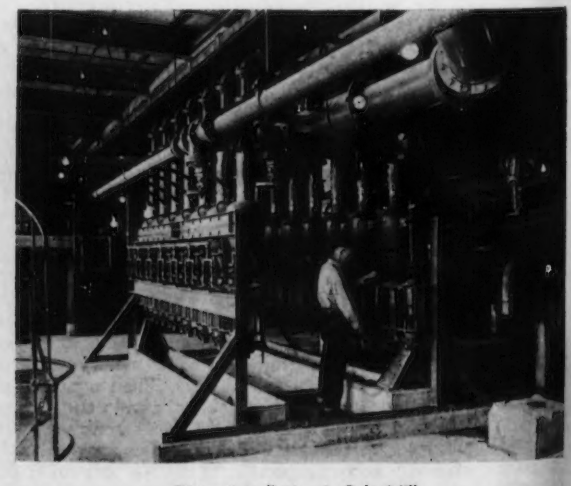
In its essence, the program has permitted the company to produce with the same raw materials and virtually the same equipment much higher grades of paper and more general uniformity.

Because pulp produced from waste paper is the principal raw material used, the operation producing this converted paper stock received considerable attention. The changes commenced with the introduction of a new cooking method using sodium peroxide and silicate in place of standard caustic soda. This process was found to be better suited to the present day supply of waste papers and imposed fewer restrictions as to fiber content of the waste papers. This, in turn, made it possible to utilize lower cost grades. This process has now been in use for approximately four years and has been patented.

It is notable, too, that in conjunction with the new cooking processes, temperatures and length of cooking time were considerably reduced, which makes for a more usable pulp from the standpoint of strength.

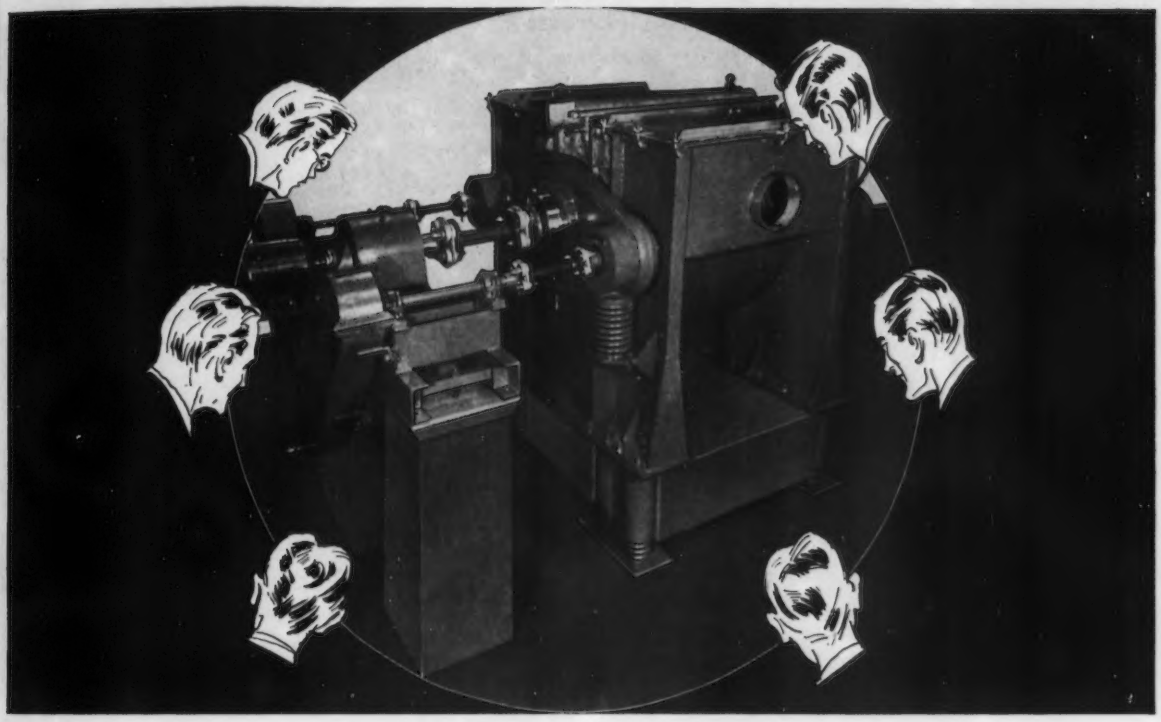
From a relatively minor phase in the pulping operation, screening was advanced to a major position. Washing of the stock was greatly improved by replacing the existing washers with so-called "slide" washers. This resulted in a marked improvement in the cleanliness of the mill's pulp.

Microjet coater in Coating Mill.



Dirtec installation in Pulp Mill.

Why This World Wide Interest in BIRD VIBROTOR SCREENS?



The answer is obvious — extraordinary performance

One mill is screening semi-chemical pulp at the rate of 50 to 60 tons per Vibrotor Screen per day — and has repeat ordered.

On unbleached kraft and sulphite stocks, Vibrotor Screens are handling up to 65 tons through .012" cut plates with stock consistency at 1.6%.

On mixtures of pine and short fibred stock, one Vibrotor Screen delivers up to 90 tons per day.

Used ahead of the paper machine, Vibrotor Screens are delivering stock that could not otherwise be put over the wire and made into salable paper.

Ask us to tell you more about the Bird Vibrotor Screen and the remarkable results it can achieve in small space at low cost.

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

The next, and latest step, was the installation of a battery of Dirtecs. This equipment, which separates heavy foreign materials from fiber, has resulted in a brighter, cleaner and cheaper raw material.

The strides that have been taken in the mill in the matter providing the paper machines with adequate stock preparation have increased the flexibility of the paper making operation to such a degree that it now is possible to produce paper in this mill from 100 percent bleached kraft, thus opening a new line of commercial printing paper grades. One of these has recently been announced by St. Regis under the trade name "Cellufold," a paper having a coating on all bleached kraft paper, and offered in a variety of weights and combinations of coatings.

The coating mill section of the Kalamazoo operation has also come in for considerable improvement. The quality of the raw stock manufactured for the coating mill has been steadily improved, and while some of the old type brush coaters are still being used, because they are particularly suited to the manufacture of certain lines of paper, a number of the brushes have been replaced with more modern equipment.

One such piece of equipment is a double coater which applies coating simultaneously to both sides of a web of paper. Not only are the brushes unable to operate at the high speed of the double coater, but they are able to apply the coating on only one side of the sheet. Another step in the modernization in this section of the mill was the addition of a Microjet or air knife type of coater. While this machine applies coating to only one side of a paper web at one time, it is capable of turning out coated paper at considerably higher rate, because of its ability to handle a much wider web than the brushes and operate at two to three times the speed.

In the coating mill, as in the book mills, the concentration by the management has been on the production of papers that are competitive in quality with any others offered on the market. By maintaining a watchful eye on printing developments, the characteristics of the paper have been varied to suit the use demands, and so keep pace with present day trends in printing. To be successful in this, it has been necessary for the management of the mill to be fully alert to possibilities offered by new coating methods, and to carry on constant experimentation and to apply new materials whenever such a step appeared indicated.

A.P.W.

ONLIWON

INDUSTRIAL
TOWELS
TISSUE

Pakistan's New Mill To be Asia's Largest

In two years' time, Pakistan hopes to have Asia's largest paper mill. Delivery of plant and machinery as well as development of the site has made considerable progress during the past year.

The mill, when finished, is expected to produce 100 tons of fine and writing paper per day. The main fibrous raw material used will be bamboo extracted from the Chittagong hill tracks close by.

Potlatch To Use Wood Chips

Equipment to grind up wood chips for sale to Potlatch Forests, Inc., Lewiston, Idaho, is being installed in the mill of the St. Maries Lumber Co.

PFI officials refused to comment on the installation.

Chipping machinery grinds bark-free wood scraps such as slabs, edgings and trim ends into chips for use in the manufacture of pulp and paper. A minimum of one carload of chips per shift will be shipped to the PFI pulp and paper plant at Lewiston.

The St. Maries installation is the fifth reported in Idaho. PFI sawmills at Lewiston and Coeur d'Alene first installed the equipment. The Boise-Payette Lumber Co. mill at Emmett and the Hallack-Howard Lumber Co. mill at Winchester have also added chipping machines.

Kleen Fibre Shuts Down

Kleen Fibre Corp. of Manchester N. H., announces that it is discontinuing operations.

Japan Increases Output Of Western Style Paper

The Japan Western Style Paper Manufacturers' Assn. reports that 1,599 million pounds of western style paper were produced in Japan during 1951, an increase of 305.7 million pounds over 1950.

To Handle Pulp and Paper Problems at Canadian Trade Fair

OTTAWA—M. W. Murphy, Commodity Officer of the Canadian Government, will be on duty in person at the Canadian International Trade Fair in Toronto, June 2-13 inclusive, to handle problems and advise businessmen on matters pertaining to pulp. E. Clarke, Commodity Officer, will handle paper problems.

G. H. Rochester, Chief of Section, will also be present to deal with wood and wood products problems at the Fair.

Plan New Newsprint Mill for Quebec

QUEBEC CITY, Que. — A proposal to construct a newsprint plant in the Lake St. John district is under government consideration, Premier Duplessis said.

The project was put forward by John Murdock, Chicoutimi industrialist, and a group of business men.

Overproduction of newsprint was one thing the government wanted to guard against but this question did not arise in the project under study.

Location for the plant would be St. Felicien, in Roberval County, about 60 miles northwest of Chicoutimi.

Nat. Container Starts Clyattsville Construction

VALDOSTA, Ga. — After some delays due to planning and preliminary work, actual construction of the $25 million pulp and paper mill at Clyattsville, near here, for the National Container Corp. has been started. The Leno Deshong Land Clearing Co., a local concern, received the contract and has started clearing the right-of-way for a railroad spur 6.2 miles long from the Southern Railway's Valdosta-Lake City (Fla.) line to the plant site. Two other contracts have been let, one to the Layne-Atlantic Co., Albany, Ga., which is to do the well drilling at the mill site and the other to the S. S. Jacobs Construction Co., Jacksonville, Fla., which will erect the office buildings.

Bowater To Begin Construction Soon

Construction of Bowater's Southern Paper Corp.'s $50 million plant near Charleston, Tenn., will begin shortly. Contract for grading of the plant site, to be completed in 90 days, has been awarded to Oman Construction Co. of Nashville. Completion of construction is scheduled for early 1954.

Sir Eric Vansittart Bowater, chairman of the board of Bowater Paper Corp., Ltd., of England, revealed the plant will afford employment for 1,000 workers. He estimated $3½ million annually would be paid in wages at the plant, and about $4 million would be spent each year for pulpwood

New Hydrapulper System For United's Thomson Mill

The board of directors of United Board and Carton Corp. has authorized the president to have a top liner and continuous hydrapulper system for filler stock installed at the company's Thomson paper mill.

The new system is one of many steps taken recently to increase paperboard production.

Newsprint Mill for Finland

The United Paper Mills, Myllykoski, Finland, is building a newsprint mill and a groundwood mill at Jamsa, near Pajane Lake, Finland. It is expected to be completed by the end of 1954.

The better the valve,
the less it will
require maintenance
With Powell, it's not "how many" but "how good." Powell Valves are so good that they operate most efficiently, last much longer, and require far less maintenance. In short, Powell can give you flow control at its best.
There's a greater variety of Powell valves to suit today than of any other individual make.
The Wm. Powell Company
Cincinnati 22, Ohio
POWELL

Newsprint From Bagasse Declared Success

First tests on a new process for the manufacture of newsprint from sugar cane waste at the Herty Foundation Laboratories were pronounced successful on May 14.

Joaquin de la Roza, who perfected the process, was enthusiastic at results, in spite of trouble with the pulp that delayed start of the run.

Under the process the waste is converted to a strong, opaque and very white paper. The experimental run was witnessed by a number of Southern publishers and paper experts.

Ed Powers, representing the Hercules Powder Co. at the demonstration, described the paper as "very white and strong, much finer than ordinary newsprint."

Use Chilean Pine for Newsprint

The president of the Corporacion de Fomento de la Industria del Pacifico, which is planning a newsprint plant near Concepcion in Chile, reports that recent trials of making paper from Chilean Insignis pine have given excellent results.

The manufactured paper has been sent to a number of newspapers to be tried out. The report of Herty Laboratories, which made the test, showed that the pulp produced from Chilean pine is superior to that extracted from pine in the United States.

United Board Moves General Offices

United Board and Carton Corp. is returning its general offices to 2 Park Avenue, New York 16, N. Y. For the past year, the company's main offices have been located at Syracuse, N. Y.

Vote to End Stevens & Thompson Strike

GREENWICH, N.Y.—Employes of the Stevens and Thompson Paper Co. on May 15 voted to return to work "as soon as possible" at the plant. The mill has been closed by a strike since April 1. The back-to-work motion was voted by a small margin, 139-118.

Although favorable to a return to work, the "yes" votes fell one short of being a majority of the 279 employes eligible to vote. A total of 257 voted in the orderly election conducted at the Rough and Ready engine house on Main Street.

Trout Thrive on Torula Yeast

WOODRUFF, Wis. — Hatchery trout that were fed a diet in which torula yeast made from spent sulphite liquor took the place of traditional ingredients gained as much weight on less food at lower cost, according to *The Progressive Fish-Culturist*, a magazine widely circulated among hatchery men.

Writing for these fish experts, Warren S. Churchill of the Wisconsin Conservation Department points out that this yeast is produced at Rhinelander as a result of the pulp and paper industry's efforts to reduce sulphite pollution. Thus young trout at the hatchery thrive on a food made from an industrial by-product which fishermen are eager to keep out of streams.

Net conclusion is that using substantial proportions of torula yeast cuts feeding costs of hatchery trout, while the fish thrive on the revised diet. Also, that by adding torula yeast the B-complex vitamin content of conventional foods can be inexpensively brought up to the prescribed requirements of modern trout rearing.

Object to Reduction In Free Storage Time

Paper mills are actively opposing a proposal that calls for the reduction in free storage time of Scandinavian pulp at Boston piers from 15 days to five days.

Mills throughout the East are cooperating with the American Paper & Pulp Assn. and the Assn. of Pulp Importers in opposition to the proposal.

One paper company representative said that the proposal for five days free time, following a 105 percent increase in freight rates since 1946, would add a further burden on New England paper mills. It is claimed that 15-day free time is essential for successful operation of the plants.

Mexico's Newsprint Shortage Grave

A grave shortage of newsprint in Mexico is affecting publication of dailies in Mexico. In Mexico City *Novedades* and *Excelsior* have cut papers down to 6 column size and reduced number of pages to half of the normal 40 pages or more. Newsprint scarcity has been felt for quite a few months in Mexico but shipments from Canada have usually arrived in time to restore reserve supplies. Now, however, with shipments long delayed, reserves are almost depleted and if the situation becomes more acute, newspapers will be forced to cease publication.

In view of the gravity of the situation, Secretary of Economy, Antonio Martinez Báez, has authorized a special credit, through the National Bank of Foreign Commerce, to acquire 900 tons of newsprint from a newsprint mill in Lufkin, Texas. This is an emergency measure to supply newsprint for Mexican City dailies until the arrival of normal shipments from Canada.

George Wisse, American business man well known to Canadian newsprint mills, is now in Mexico studying the situation and he has offered his services to solve the current problem. It was through his intervention that the emergency shipment from Texas was arranged. Wisse expressed the belief that Canadian shipments will increase Mexico's newsprint reserves within twenty days (this written May 13).

Heavy world demand for newsprint is now having repercussions in Mexico but according to Wisse and Báez, they do not expect any serious complications at this time. The Secretary of Economy stated that Mexico has contracts with Canadian mills for a volume of 25,000 tons of newsprint. This will be enough, he said, to take care of national consumption for a little more than six months.

It is the belief here that agreements concluded last year in Canada by a Mexican commission including Gilberto Figueroa, head of *Excelsior*, Martinez Báez and Guillermo Ibarra of *El Nacional*, were of such an order that Mexico's needs will be met. While there is understanding that Canada is having difficulties in fulfilling orders, the general opinion is that shipments will continue to be made according to existing contracts.

However, paper publishers, in view of delays in receipt of newsprint shipments, plan to initiate a program to stretch out reserves when they arrive so that the possibility of non-publication can be averted. This will probably mean the reduction in number of pages as well as dropping of certain Sunday supplement features, chiefly the so-called "cultural" or magazine section pages.

Five carloads of newsprint arrived in Mexico City from Nuevo Laredo on May 14, totaling 150 tons, or the equivalent for one day's normal consumption. This was the first part of a 900 ton shipment from the Southland Paper Mill of Lufkin, Texas.

Newspaper publishers were awaiting the arrival of the *S. S. Sun Valley*, which was expected to arrive in Veracruz bringing a part of 4,199 rolls of newsprint on its way from Canada. However, this was not expected to arrive here until the 19th, and publishers had made arrangements to suspend publication of papers on the 15th unless new shipments from the border arrived in sufficient quantity to permit continued publication.

The National Railways was expediting rail movement of newsprint to the capital and there were 23 freight cars already waiting in Veracruz to transport the Canadian newsprint coming by sea.

Seek Wage Hike

OTTAWA — The 13,000-member Ontario-Manitoba Council of Pulp and Paper Mill Unions and affiliated unions with over 9,000 members have failed to reach an agreement with employers, including paper companies located in Manitoba, Ontario and Quebec, so that conciliation of 1952 contracts may be sought.

Companies are holding to claims that the cost of living in Canada is declining and the loss of U. S. exchange for products sold by companies across the border is affecting adversely their earnings. On the other hand, the workers' unions are claiming that a 20 percent boost in wage rates is necessary along with a 40-hour week.

HAM FELTZ says:

Cushioned knuckles

leave no scars...

The open spaces between strands of a papermaker's felt are easily seen by the naked eyes when the woven fabric is removed from the loom. They vary in size and shape according to the pattern of the weave—large holes for high speed machines, smaller holes for low speeds.

When the fabric has been shrunk, fulled and napped, the pattern of the weave is cushioned. It can't leave its imprint upon the sheet that is formed on it. But the open spaces remain open—to carry off the water that is squeezed out by the press.

You will get a lot of tonnage from every Hamilton Felt if you use ordinary care to keep it clean but you will save money by changing felts before the "knuckles" begin to leave their marks.

Hamilton Felts

From the thinnest tissue to the heaviest board, there is a Hamilton Felt that will do your work without leaving felt marks in your sheet.

MIAMI WOOLEN MILLS

Established 1858

SHULER & BENNINGHOFEN, HAMILTON, OHIO

PEOPLE

WILLIAM S. STUHR, President of United Board and Carton Corp., has been named to the Advisory Committee of the Syracuse University Institute of Industrial Research. The Institute is an organization which coordinates and administers research programs to assist industry throughout the country. Its facilities are available to all industry, business and government on local, state and national levels.

D. W. YOUNG has been appointed manager of the Kansas City District for Wood Conversion Co., St. Paul, Minn. Mr. Young, who was Atlanta, Ga., district manager prior to his new appointment, will direct company sales activities from district headquarters in Kansas City, Mo. He was first employed by the company in 1941 as a salesman in the San Antonio, Texas territory. In November 1949 he became a salesman in the Eastern District and on April 1, 1951, he was appointed manager of the Atlanta, Ga. District.

HARRY M. RAMBO, merchandising manager of the D. L. Ward Co., has been appointed manager of the Coarse Paper Division. Mr. Rambo has been with D. L. Ward for 21 years including time out for service in the Coast Guard during World War II on North Atlantic convoy duty. He has worked in various departments of the company including Sales and for several years has been a member of the company's management committee. **Joseph P. Flury,** who has been manager of the Envelope Division, will be assistant to Mr. Rambo.

GEORGE E. SCHOFIELD has been appointed assistant resident manager of the Fernandina Beach, Fla., plant of Rayonier, Inc., under Fred B. Doherty, manager, succeeding **Steve Rupert,** who has been transferred to Grays Harbor, Wash., where he is to be assistant to the resident manager. Mr. Schofield has been with Rayonier since 1937 and with the Fernandina Beach mill since 1940. He was chief chemist there until 1945, when he was promoted to assistant manager.

NEAL I. PAULSEN, manager of paper development; **William H. McPherson,** supervisor of paper research; and **Graham B. Cross,** service engineer, Insulite technical service, have been added to Minnesota & Ontario Paper Co.'s research department. All three men are under the administration of **M. S. Wunderlich,** director of research.

Mr. Paulsen acts in a liaison capacity between the research, production and paper sales department, developing and improving products to fit the needs of the packaging industry. Mr. Paulsen comes to Mando's research department with 22 years experience in the advertising, printing, engraving and paper converting industries. Mr. Paulsen is the holder of four patents dealing with products converted from paper.

Mr. McPherson supervises the development of new paper products at the firm's International Falls, Minn., mill. As a chemist, he has had six years experience with two paper firms and as an atomic bomb scientist at Oakridge, Tenn., during World War II.

DR. C. E. HARTFORD will join the **Riegel Carolina Corp.** as vice-president. Dr. Hartford for the past eleven years has been connected with Union Bag and Paper Co., and for the past seven years has been managing the Pulp and Paper Division at Savannah. Prior to that he was Chief Chemist of the Southern Kraft Division of International Paper Co., Panama City, Fla. Riegel

J. P. Dailey

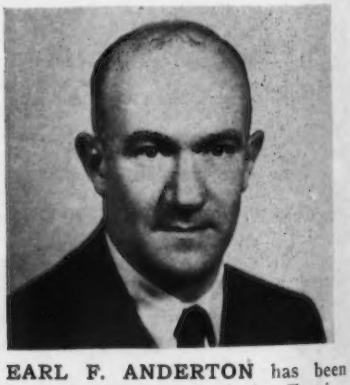
Carolina has also promoted **J. P. Dailey** to the position of production manager. Mr. Dailey came with Riegel Carolina as general superintendent in September 1951. He had previously been with the Coosa River Newsprint Co., Childersburg, Ala.

JOHN STEVENS, JR., senior vice-president from standpoint of length of service succeeds **D. C. Everest** as president of Marathon Corp.

Mr. Everest, who joined Marathon as general manager when the company was founded at Rothschild in March, 1909, retained his dual positions as chairman of the board of Marathon Corp. and as chairman of Marathon Paper Mills of Canada, Ltd., the company's principal timber and pulp-making operation.

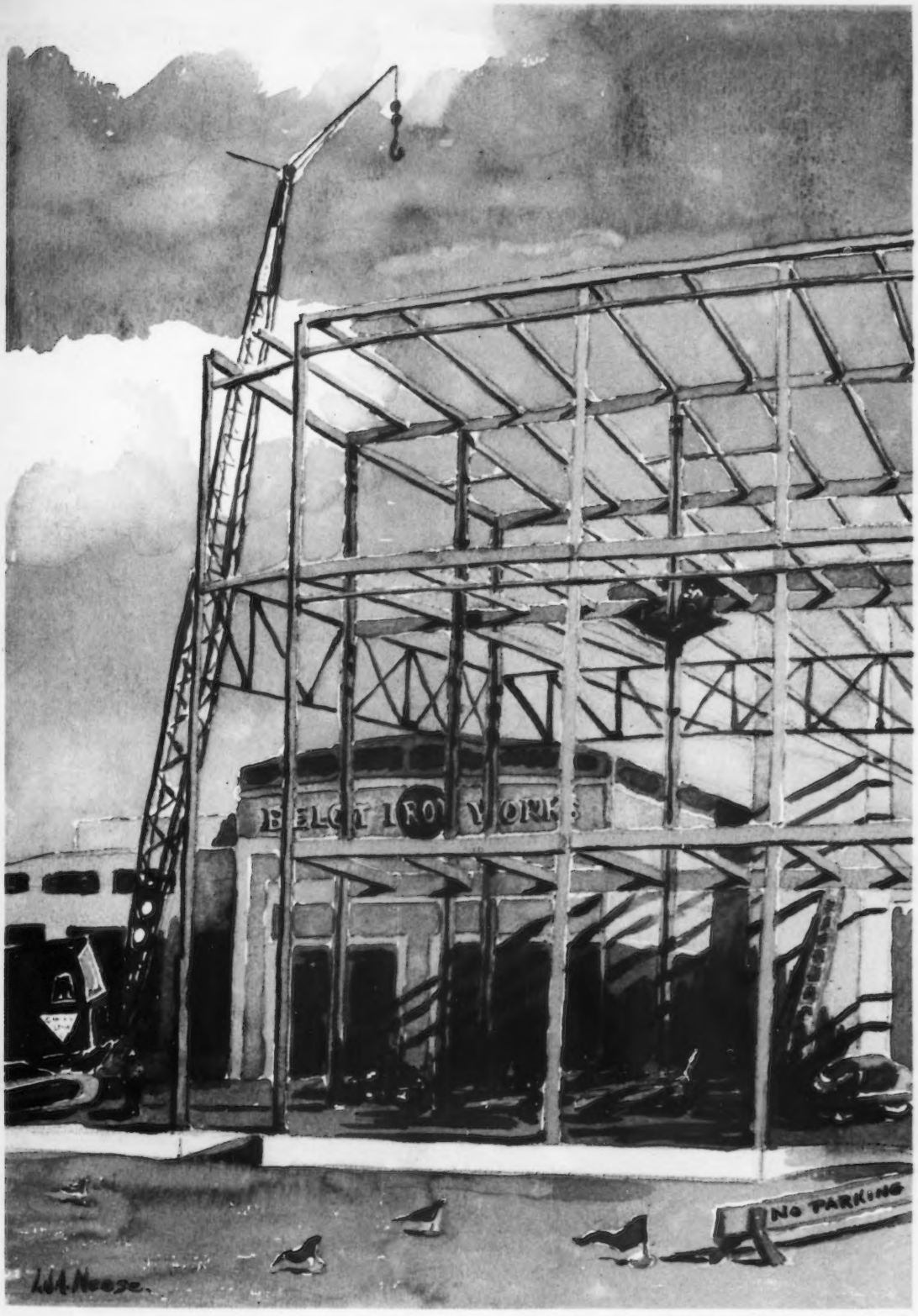
Elevated to executive vice-president in specialized capacities were **Leo E. Croy** and **Roy J. Sund,** both of Neenah, Wis. Mr. Croy was elevated from vice-president in charge of marketing to executive vice-president in charge of marketing. Mr. Sund, until the board meeting vice-president in charge of manufacturing, was named executive vice-president in charge of manufacturing.

Frank J. Dvorak, Wausau, Wis., formerly assistant to the president, was named vice-president in charge of finance.



EARL F. ANDERTON has been named plant manager of the Empire, Oregon mill of Coos Bay Pulp Corp., a Scott Paper Co. subsidiary. Mr. Anderton will replace **Henry S. Godshall, Jr.,** who will fill the newly created position of production manager of the Fort Edward, N. Y., plant of Marinette Paper Co., another Scott subsidiary.

DR. FERDINAND WULTSCH has been making a tour of various paper mills in the United States. He is professor of paper making at the University in Graz, Austria and also in charge of manufacturing for the Arland Pulp & Paper mills the same city. He can be reached c/o George Lutz, 280 Madison Avenue, New York City 16.



WATER COLOR PAINTING BY L. J. A. NEESE

PLANT EXPANSION at Beloit Iron Works, Beloit, Wisconsin, will permit reorganization for increased efficiency in building high-speed, high-production Beloit paper machines.

ASSOCIATIONS

Northwestern Supts. Meet

From various points from Camas to New York came 200 members of the Superintendents Assn. to attend the annual meeting of the Northwestern Div., at Rockford, Ill., May 9th.

The meeting started at a luncheon in the Hotel Faust. Glen Sutton, National president reported on the National Convention to be held in Detroit, June 17-19. From early reservations, indications are that it will be attended by at least 1000 members.

Dean Stone of Beloit College addressed the meeting on the subject of foreign policy, explaining what a foreign policy was and how it was developed and executed. The balance of

At cornerstone ceremony for new Beloit Iron Works dryer shop. Fred Boyce, "father of the Superintendents Association," helps E. H. Neese (right), Chairman of Beloit Iron Works, to place the cap on the cornerstone.

the afternoon was devoted to discussions on an informal basis of practical operating problems in the wood room, pulp mill and on the paper machine.

Dinner was served at the Wagon Wheels.

Saturday, May 10th, the Division assembled at the Beloit Iron Works for a tour of the shops and to witness the laying of the corner store for the new dryer erection building.

Mr. E. H. Neese, Chairman of the Board of Beloit, Fred Boyce, Trustee of the association, Harry Moore, President of Beloit and P. H. West, Division Chairman, set the stone true and square.

Luncheon was served at the Beloit Country Club by the gracious host, Beloit Iron Works.

Golf and trap shooting closed the afternoon schedule followed by a dance Saturday evening.

The meeting was in charge of Larry Murtfeldt, chairman, Carl Swartz, Jack Lauterbach, Charles Cain, Paul West, Myles Reif, Gus Klaus, Alice Collipp.

50th Annual Meeting of Paper Assn. of N.Y.C.

The paper Assn. of New York City held its Fiftieth Annual Meeting on May 6th at the Hotel New Yorker. The day's events started with the annual Meeting of Directors at 10:00 A.M., which was followed by separate meetings of the Fine Paper Division and Wrapping & Box Covering Divisions, and in turn, followed by a General Meeting of the entire association. Charles E. Canfield of the Canfield Paper Co., retiring President, presided at the Board of Directors Meeting and at the General Meeting; and Leon Pomerance of Forest Paper Co., and Bernard B. Novasel of Lachman-Novasel Paper Corp. presided, respectively, at the Divisional Meetings.

The newly elected Officers are as follows: President: Bernard B. Novasel of Lachman-Novasel Paper Corp.; Treasurer: Gustave C. Indruk of Tappen & Indruk Co.; Secretary: Irwin Slote, for his 26th term in that office; Vice-President, Fine Paper Division: Leon Pomerance of Forest Paper Co.; Vice-President, Wrapping & Box Covering Division: Joseph H. Simon of Ace Paper Co.; Members of the Executive Committee, Fine Paper Division, to fill expiring terms: Paul K. Roth of H. P. Andrews Paper Co. and Leon Greenebaum of Willmann Paper Co.; Continuing members of Executive Committee, Fine Paper Division, whose terms have not expired: Arthur G. Nelson of A. G. Nelson Paper Co., Fred G. Low of Green & Low Paper Co., Hobson F. Miller of Hobson Miller Paper Co., and Jacob Milton of Milton Paper Co. For Members of the Executive Committee, Wrapping & Box Covering Division, to fill expiring terms: Irving Shavitz of Majestic Paper & Twine Co., and Sidney Salwen of Joe Salwen Paper Products Corp.; Continuing members of Executive Committee, Wrapping & Box Covering Division, whose terms have not expired: Charles J. Slicklen of Chas. F. Hubbs & Co., Frederick G. Marks of Frederick G. Marks Co., Charles F. Coy of Coy, Disbrow & Co. and Martin J. Usdan of Heller & Usdan, Inc.

The Annual Meeting was followed by a Luncheon at which there was an overflow attendance. The principal speaker was Fen K. Doscher, Vice President in Charge of Sales of Lily-Tulip Cup Corp.

Northern New York Paper Group Elections

WATERTOWN, N. Y. — Henry McRorie, eastern traffic manager of the St. Regis Paper Co., was unanimously elected president of the Northern New York Paper Group at its 14th annual dinner-meeting held at the Hotel Woodruff.

Other officers chosen include E. V. Deans, Jr., of the Racquette River Paper Co., Potsdam, vice-president; Albert W. Horr, of the Brownville Paper Co., treasurer; Maurice C. Goodison, reelected secretary.

Members of the executive committee include the elective officers besides V. S. Pitkin of the Brownville Board Co., Charles Hirschey of the Climax Manufacturing Co., Castorland, H. J. Wenz of the Latex Fibre Industries, Beaver Falls, F. J. Stephans, J. P. Lewis Co., Beaver Falls, James C. McCormick, Knowlton Brothers Inc., Watertown and William Martin, Martin Pulp & Paper Co., Norwood.

The organization, formed for the purpose primarily of obtaining carload freight rates through the members pooling less-carload shipments into carload lots, consists of the Brownville Board Co., Brownville Paper Co., Carthage Paper Makers Inc., Climax Manufacturing Co., Knowlton Brothers Inc., Latex Fibre Industries, Inc., J. P. Lewis Co., Martin Pulp & Paper Co., St. Regis Paper Co. and Racquette River Paper Co.

During luncheon. Left to right, Glen Sutton, Paul West, Dr. Ivan Stone, Roy Mielke.

Technical meeting on "Wood Room and Pulp Mill." The man standing is Roy Kelly.

GOVERNMENT GOSPEL

Decide Against Wood Pulp Allocation

WASHINGTON, D. C.—A recommendation by the International Materials Conference against any allocation of dissolving wood pulp at this time has been accepted by member governments, the agency announced this week.

However, short term supply problems involving dissolving wood pulp will be kept under review and the pulp-paper committee can recommend allocation or any other action if necessary it was said.

The decision against allocation followed a report that the 1952 situation of this pulp indicates a total free world production of approximately 2,263,000 metric tons and total requirements of approximately 2,230,000 metric tons. Increased production of supplying countries was an important factor in the improvement, with the committee estimating that production this year will be approximately 10 percent above that in 1951.

NPA Names Mullen

WASHINGTON, D. C. — Thomas H. Mullen has been named Deputy Director of the Pulp, Paper and Paperboard Division of the NPA. He succeeds L. D. Nicolson, Washington, D. C., former president and general manager of the District of Columbia Paper Co., who has resigned from the NPA to join the National Vulcanized Fibre Co., Wilmington, Del.

The new Deputy Director during 31 years in the paper industry has served as vice-president and general manager of the Maui Paper Co., Maui, Hawaii, and at various times, was with the Claremont Paper Co., Cherry River Paper Co., and Gaylord Container Corp.

NPA Appoints Clay

John C. Clay has been appointed Director of the Containers and Packaging Division of NPA.

Mr. Clay is on leave as assistant to the executive vice president of National Starch Products Inc., New York City. The firm manufactures starch products, industrial adhesives and synthetic resins.

Pulp, Paper and Paperboard Expansion

WASHINGTON, D. C. — Expansion of the pulp, paper and paperboard industries is substantially filled with exception of the newsprint expansion program, NPA reported this week to a meeting of the Book Publishing Industry advisory committee.

Every holder of a certificate of necessity in these fields is proceeding with his original plan of expanded production, the agency continued, and the plans should fully take care of defense and civilian requirements for all pulp, paper, and paperboard except newsprint.

Turning to wastepaper generated from the industry, NPA representatives suggested more intensive efforts at separating the various kinds of waste paper, because of losses involved in processing mixed waste paper containing wet strength paper, papers printed with indelible inks, and papers containing latex in the furnish, ink and adhesives.

C/N Awarded

As of May 1 additional Certificates of Necessity have been issued to:

Sterling Pulp & Paper Co..... $3,313,000—30%
Hammermill Paper Co..... 15,439,000—50%
Oxford Paper Co..... 1,200,000—35%

Army Awards Made

Awards have been made by the New York Quartermaster Procurement Agency, 111 E. 16th Street, New York 3, N. Y., on Invitation for Bid QM-30-280-52-1336, covering Paper, bristol, index, chemical wood, as follows:

Contractor	*Quantity*	*Price Range*	*Dollar Value*
The Pulp & Paper Trading Co. 21 E. 40th St., N.Y.C.	800,000 shts.	$.0233-.0464	$24,032.40
Walker Goulard Plehn Co., Inc. 450 Pearl St., N.Y.C.	30,000 "	.03148-.04348	1,095.60
The Champion Paper & Fibre Co. Hamilton, Ohio.	1,126,000 "	24.84-33.51 M	32,658.63
Bulkley, Dunton & Co., Inc. 295 Madison Avenue, N.Y.C.	35,000 "	.0577669-.079112	2,360.01

QM-30-280-52-1285, covering Item 1, Towels, paper; and Item 2, Napkins, paper, as follows:

Contractor	*Item*	*Quantity*	*Price Range*	*Dollar Value*
Crown Willamette Div. Crown Zellerbach Corp. 343 Sansome St. San Francisco, Calif.	1	477,683 pkgs.	$.19	$90,759.77
Graham Mfg. Co. 56 Canal Street Holyoke, Mass.	2	100,000 "	.7136	71,360.00
A. P. W. Products Co., Inc. 655 Madison Avenue New York, N. Y.	1	477,683 "	.17466	83,432.11
White Washburne Co., Inc. 655 Madison Avenue New York, N. Y.	2	100,000 "	.75	75,000.00

QM-30-280-52-1477, covering Paper, toilet tissue, crushed, 1000 sheets per roll, as follows:

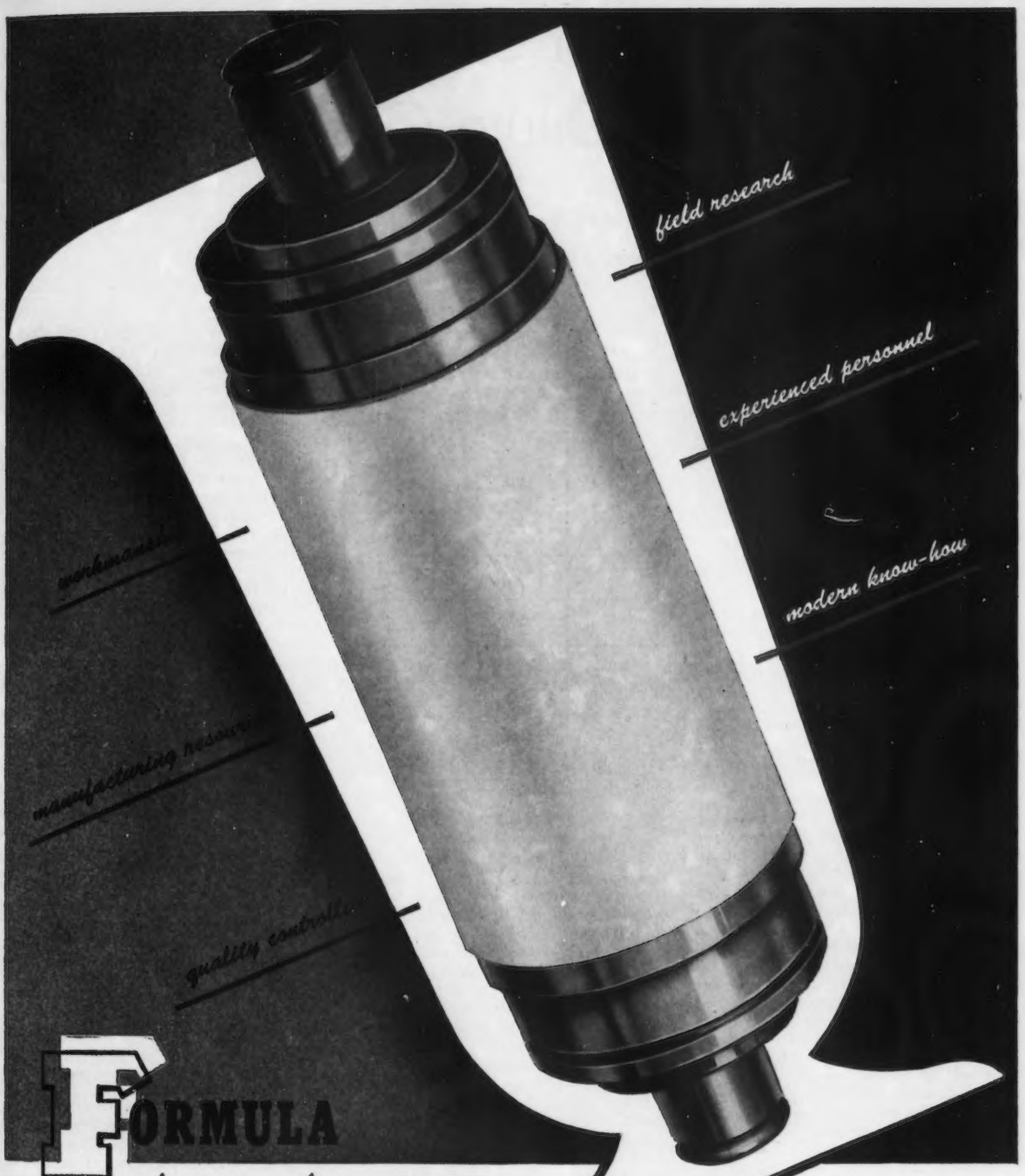
Contractor	*Quantity*	*Price Range*	*Dollar Value*
Ashland Paper Mills 655 Madison Avenue New York, N. Y.	500,000 rls.	$.0514	$25,700.00

QM-30-280-52-1429, covering Item 1-4, Paper, bond, 50 percent rag, various; and Item 5, Paper, ledger, 25 percent rag, unruled, as follows:

Contractor	*Item*	*Quantity*	*Price Range*	*Dollar Value*
Bermingham & Prosser Co. 10 E. 40th St. New York 16, N. Y.	1&4	3,780 rms	$1.35-11.63	$37,931.90
Walker-Goulard-Plehn Co., Inc. 450 Pearl St. New York, N. Y.	5	3,000 "	6.409-6.697	19,659.00
Monadnock Paper Mills, Inc. Antrim Road, Bennington, N. H.	3	70 "	10.80-11.07	765.45
Bee Paper Co., Inc. 1-9 Joralemon St. Brooklyn, N. Y.	2	120 "	11.44-11.84	1,396.80

QM-30-280-52-1200, covering Barrier Material, 200 yard roll, as follows:

Contractor	*Quantity*	*Price Range*	*Dollar Value*
Glas-Kraft Inc. Mill St., Lonsdale, R. I.	2,060 rls.	$31.56-34.41	$67,175.34
Arkell Safety Bag Co. 10 E. 40th St., N. Y. C.	620 "	10.00	6,200.00
Stocker Mfg. Co. Netcong, N. J.	110 "	6.07-6.36	690.90
Gaylord Container Corp. 111 N. 4th St., St. Louis Mo.	500 "	10.20	5,100.00
Graham Paper Co. 475 5th Ave., N. Y. C.	2,997 "	6.37-8.43	24,955.21
Longview Fibre Co. 1 Montgomery St. San Francisco, Calif.	1,551 "	8.88	13,772.88
Union Bag & Paper Corp. 233 Broadway, N. Y. C.	23,983 "	6.50-18.92	252,644.81



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Recovery of Sulfur Dioxide from Dilute Gases*

H. F. Johnstone

Professor of Chemical Engineering, Univ. of Illinois, Urbana, Ill.

Abstract

The prevailing shortage of sulfur resulting from the greatly increased demand and diminishing resources in the United States has brought about a reconsideration of methods for the recovery of sulfur dioxide. The situation is particularly serious in the paper industry where the mills are often located in areas distant from smelters and the other sources of concentrated waste gases. Conservation of sulfur is necessary and every effort must be made to prevent waste. This situation is likely to exist for several years, since the resources of sulfur in Texas and Louisiana will be unable to supply the increased demand. Recovery of hydrogen sulfide from refinery and natural gases will help to alleviate the condition, but it is unlikely that this source will ever supply more than 10 percent of the sulfur consumed in the two countries. The sulfur shortage will undoubtedly be made up by increased use of pyrites with heavy exportations from Canada into the United States. Rich smelter gases will be tapped for sulfur dioxide for acid production in increasing quantities. In fact, we may look to the time when much of the acid produced will come from by-product gases and brimstone will be used only where elemental sulfur is required for processing. Nearly 80 percent of the sulfur now consumed passes through the sulfur dioxide stage where it is used as such or is further oxidized dized to sulfuric acid. As recovery processes are improved, each industrial area will be provided with a source of sulfur dioxide and liquefaction and transportation costs will not be so important as they now are. It is unlikely that elemental sulfur will be produced in quantity by reduction of sulfur dioxide because of the cost of the reducing agent and the expensive process that is involved. Furthermore, liquid sulfur dioxide cannot be transported economically over long distances. Industries that require the gas will look to their immediate neighborhood for sources. Many will find it economical to recover it from stack gases from the combustion of high sulfur coal burned in their own power plants. Katz points out that the amount of sulfur emitted to the atmosphere as sulfur dioxide greatly exceeds the total quantity that is consumed, and the sulfur in stack gases from power plants exceeds that in all other forms of waste gases (35 million tons/year). It is unlikely that a large portion of this sulfur dioxide can be recovered because much of it results from the combustion of low sulfur coal, but an increasing percentage of the coal used contains more than 4 percent sulfur; that used in some of the paper mills in Canada contains as much as 8 percent. With modern methods of combustion the stack gases from these fuels contain 0.5 percent SO_2 and more, and recovery can be accomplished easily and economically.

* Presented at the Annual Meeting of the Canadian Pulp and Paper Assn. held at the Mount Royal Hotel, Canada, January 23-25, 1952.

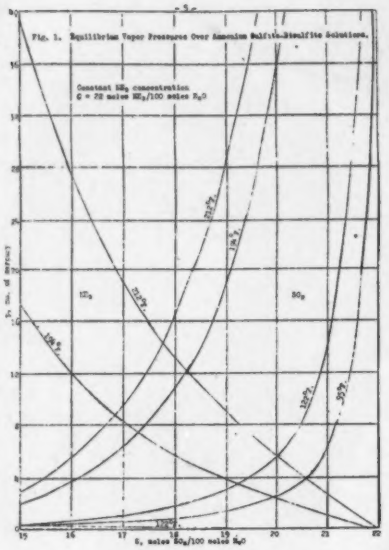


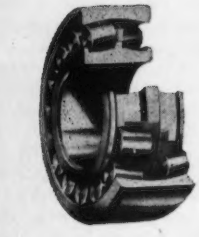
Figure 1

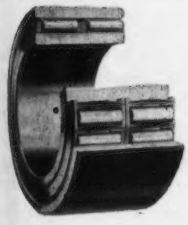
The Ammonium Sulfite-Bisulfite Cycle

Careful measurements have been made of the equilibrium vapor pressures of solutions of several systems containing sulfur dioxide. Such data are necessary in order to make engineering studies of the applicability of these systems to cyclic processes. Data have been published on sulfite-bisulfite solutions of ammonia, sodium, and methylamine, and solutions modified by the presence of sulfates, phosphates, and organic acids, at temperatures ranging from 95°F. to 194°F. *(4,6)*. Of all these systems, the ammonia solutions appear to be most useful for sulfur dioxide recovery. The reason for this, in part, is the high solubility of ammonium salts which permits using concentrated solutions with large absorption capacities for absorbing sulfur dioxide even from dilute gases. Theoretical considerations indicate that certain modified solutions containing salts of weak acids may be even better suited for recovery of sulfur dioxide *(6)*. An example of these would be solutions containing sodium borate. Unfortunately, the heat effects involved in these solutions and the difficulty of handling suspensions of solids in the scrubber and regenerator make this system unfavorable from a practical standpoint.

Equilibrium vapor pressures of ammonia and sulfur dioxide over concentrated solutions of ammonium sulfite-bisulfite are shown in *Figure 1*. The curves on the right show the maximum amount of sulfur dioxide that can be absorbed at the given temperatures by solutions in equilibrium with the gas at the partial pressures shown by the ordinates. For temperatures up to 122°F. the solutions have a negligible partial pressure of ammonia in the range shown. Consequently, loss of ammonia into the gases is not serious as long as the solutions are maintained in this range. When the solutions are heated, the vapor pressures of both sulfur dioxide and ammonia, as well as of water, increase. It is possible to strip the sulfur dioxide from the solution as long as its vapor pressure at the stripping temperature is higher than the vapor pressure of ammonia. The limit of regeneration by steam stripping is approximately the point of intersection of the two curves. The difference between this concentration and the maximum that may be obtained in equilibrium with the gases at some lower temperature represents the theoretical maximum capacity of the solution with steam regeneration. The capacity of the solution is important in determining the amount of absorbent that must be circulated in contact with the waste gases. It depends upon the temperature of absorption, the temperature of regeneration, and the concentration of ammonia in the solu-

pulling together...





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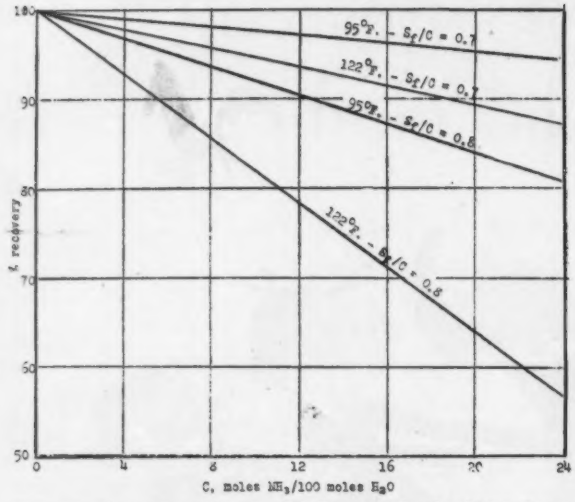


Figure 2—Theoretical Maximum SO_2 Recovery for Scrubbing Gases Containing 0.45% SO_2 With Ammonia Solutions. S^f/C is the mole ratio of sulfur dioxide to ammonia in the solution to the scrubber. Temperatures shown are for entering solutions in equilibrium with leaving gases.

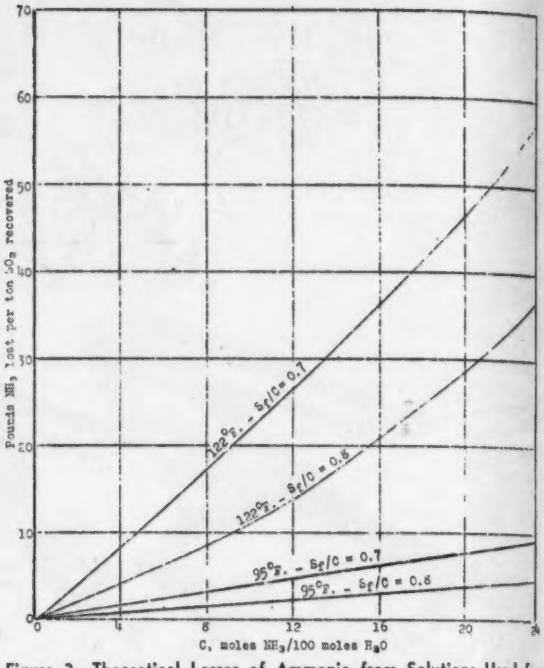


Figure 3—Theoretical Losses of Ammonia from Solutions Used for Scrubbing Gases Containing 0.45% SO_2.

tion and on the amount of sulfur dioxide in the gases.

For interpolation and extrapolation of the vapor pressure data, the following formulas have been derived for the vapor pressures of the three components of the ammonia solution

$$p_{SO_2} = \frac{(HSO_3^-)^2}{(SO_3^=)} = M\,\frac{(2S-C)^2}{C-S}$$

$$p_{NH_3} = N\,\frac{(NH_4^+)(SO_3^=)}{(HSO_3^-)} = N\,\frac{C\,(C-S)}{2S-C}$$

$$pH_2O = P_w\,\frac{(H_2O)}{(NH_3)+(SO_2)+(H_2O)} = \frac{100\,P_w}{100+C+S}$$

$$\log M = 5.865 - 2369/T$$
$$\log N = 13.680 - 4987/T$$

If sulfate is present in the solution from the absorption of sulfuric acid vapor or oxidation of part of the sulfate, the equations become

$$p_{SO_2} = M\,\frac{(2S-C+2A)^2}{C-S-2A};$$

$$p_{NH_3} = N\,\frac{C(C-S-2A)}{2S-C+2}$$

Concentrations are expressed in terms of C, total moles of ammonia, S, total moles of sulfur dioxide, and A, moles of sulfuric acid (or other equivalent strong acid) per 100 moles of water. The constants M and N are functions of the absolute temperature (°K.) as shown. The equations give partial pressures in millimeters of mercury.

For a given ammonia concentration, the ratio of sulfur dioxide to ammonia, S_f/C, in the solution entering the scrubber, and the temperature of the scrubbing solution establish the vapor pressure of ammonia over this solution and thus the possibility of loss of ammonia to the gases. Obviously this must be kept to a very low minimum, else the cost of ammonia becomes serious. This ratio and the temperature also determines the amount of sulfur dioxide that is left in the gases, as well as the capacity of the solution for absorbing the gas. *Figures 2, 3, and 4,* respectively, show the maximum recovery efficiency attainable, the amount of ammonia lost by vaporization per ton of sulfur dioxide recovered, and the capacity of the solutions, as functions of the ammonia, concentration. The curves are drawn for the conditions of scrubbing a dilute gas such as from burning high sulfur coal.

Two absorption temperatures and two feed compositions are considered which are in the range of practical operation with dilute waste gases. Thus it appears possible to obtain good removal of sulfur dioxide from waste gases containing 0.45 percent SO_2 without serious loss of ammonia into the gases and maintain capacities of two percent, or more, of the weight of the absorbent. This is indeed better than many cycle processes and exceeds the capacity of water for absorbing sulfur dioxide which is the basis of the Haenisch - Schroeder process for producing the pure gas from burning sulfur *(3)*.

It is obviously important to keep the temperature of the scrubbing solution as low as possible in order to maintain high capacity and to accomplish good recovery from dilute gases without loss of ammonia. Indeed, this is one of the most important factors in recovery of sulfur dioxide from stack gases from the combustion of coal. Unfortunately, these gases often contain a large amount of water vapor from the combustion of hydrogen and evaporation of water in the coal. The wet bulb temperature, which automatically establishes the temperature of absorption in the scrubber, is approximately 127° F. for stack gases at 300° F. containing 0.05 pounds of water per pound of dry gas. Actually, the equilibrium saturation temperature in respect to the solutions used for scrubbing may be slightly higher because of the lower vapor pressure of water in equilibrium with the concentrated solutions. This elevation may amount to as much as 10° F. for the most concentrated ammonia solutions. Obviously it does no good to cool the gases by a spray of water before the scrubber, because adiabatic humidification leaves the wet bulb temperature constant. De humidification by direct condensation of moisture may be too expensive when dealing with large volumes of gases.

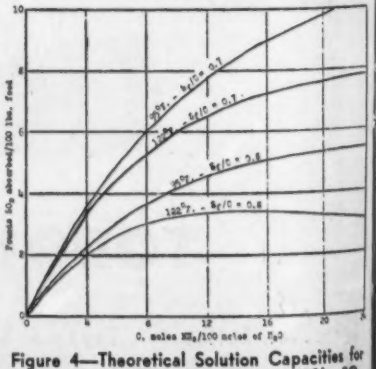
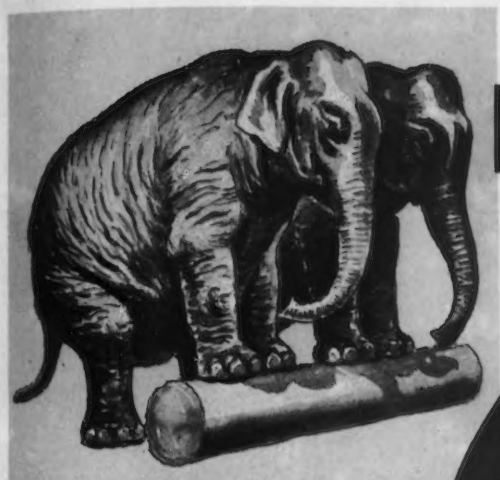


Figure 4—Theoretical Solution Capacities for Scrubbing Gases Containing 0.45% SO_2



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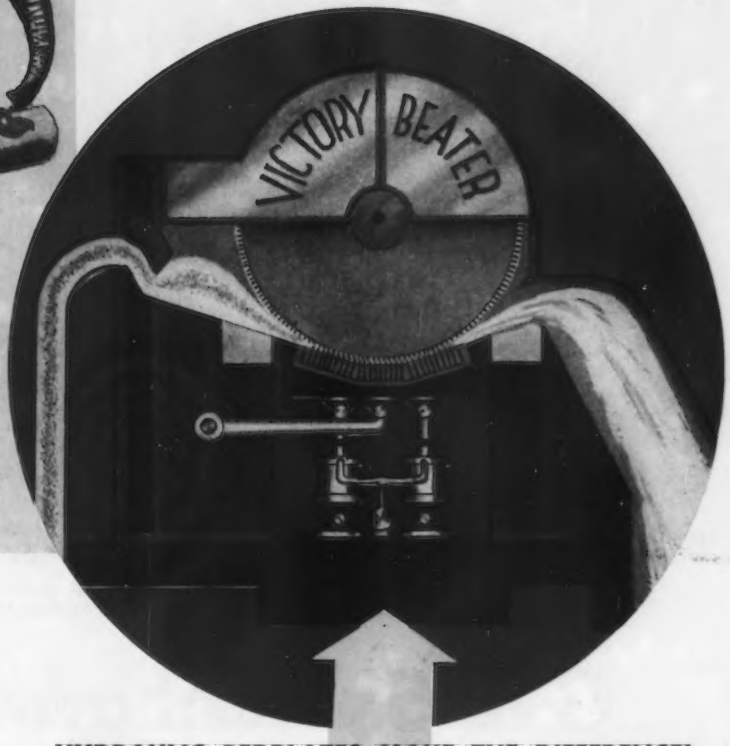

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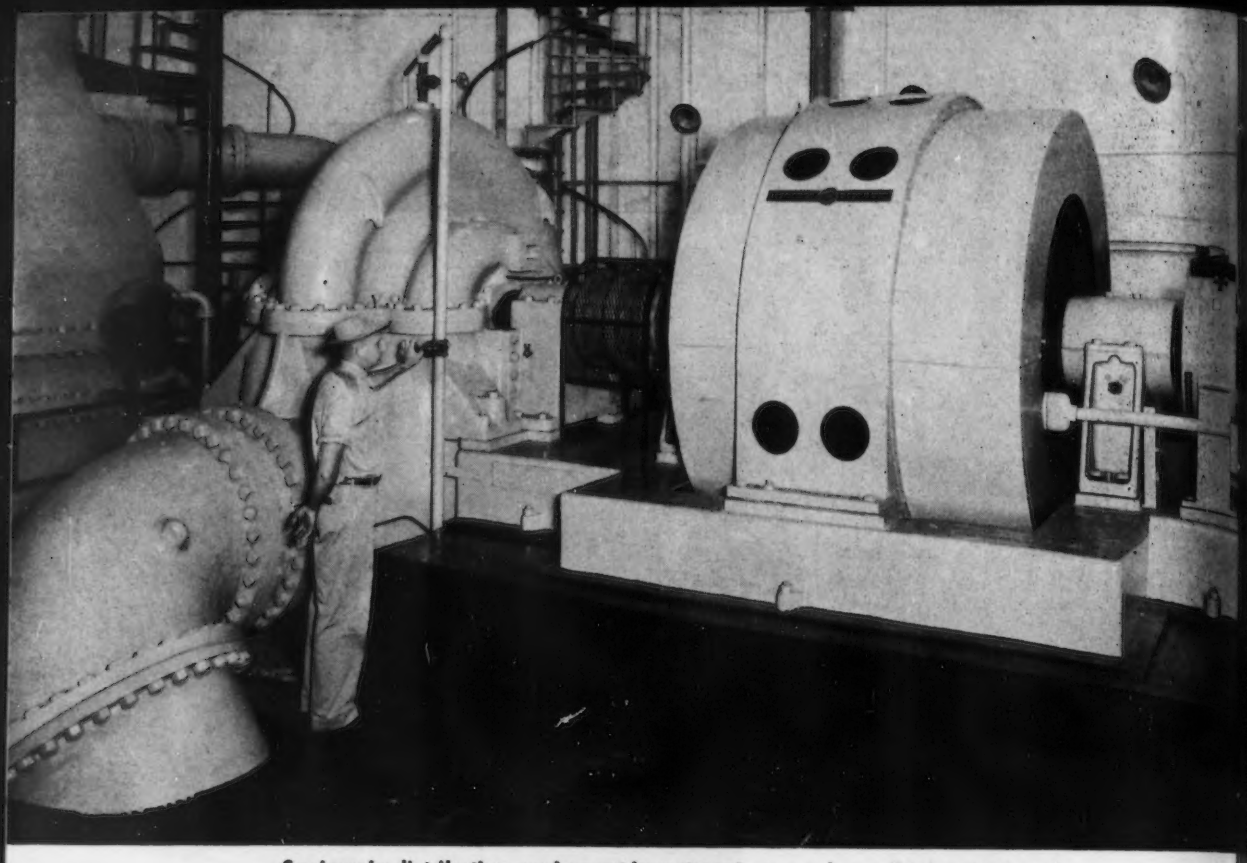
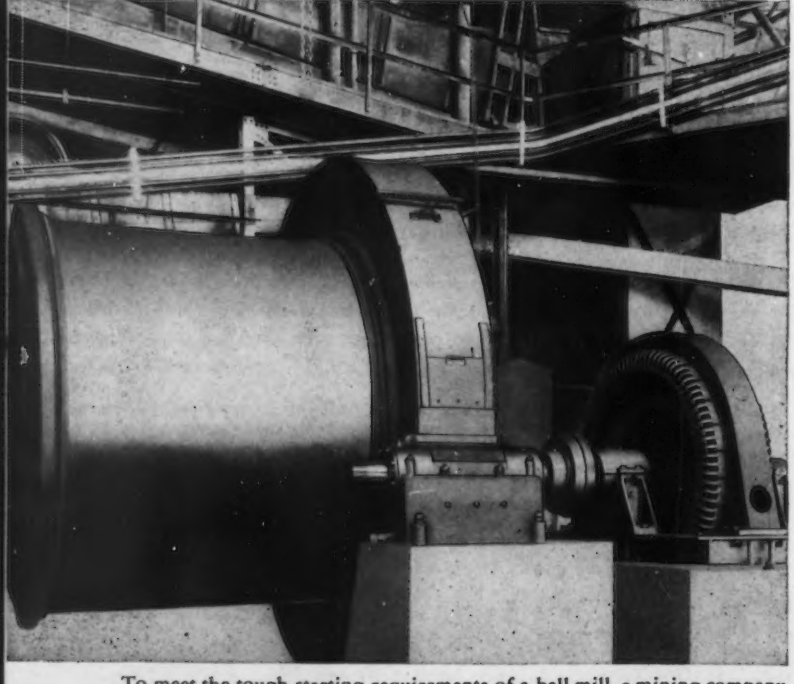
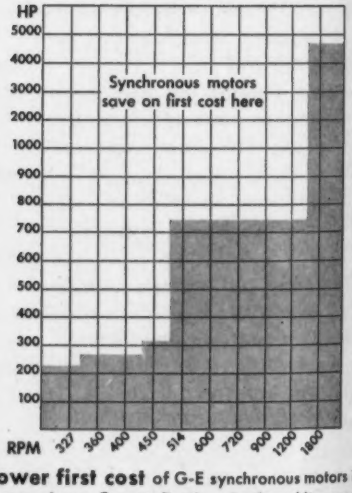


Savings in distribution equipment investment were made possible by selection of this General Electric 2500 hp synchronous motor for a municipal pumping station.

G-E Synchronous Motors



To meet the tough starting requirements of a ball mill, a mining company chose this G-E high-torque synchronous motor rated at 600 hp. Initial cost was low and the motor has given 20 years of dependable service.



Lower first cost of G-E synchronous motors is shown above. For applications in the white area, synchronous motors cost less than any other kind of motor. Calculations below show power savings on a typical 1000 hp, 514 rpm motor.

Gain in efficiency over other types of motors at same rating	**2.2%**
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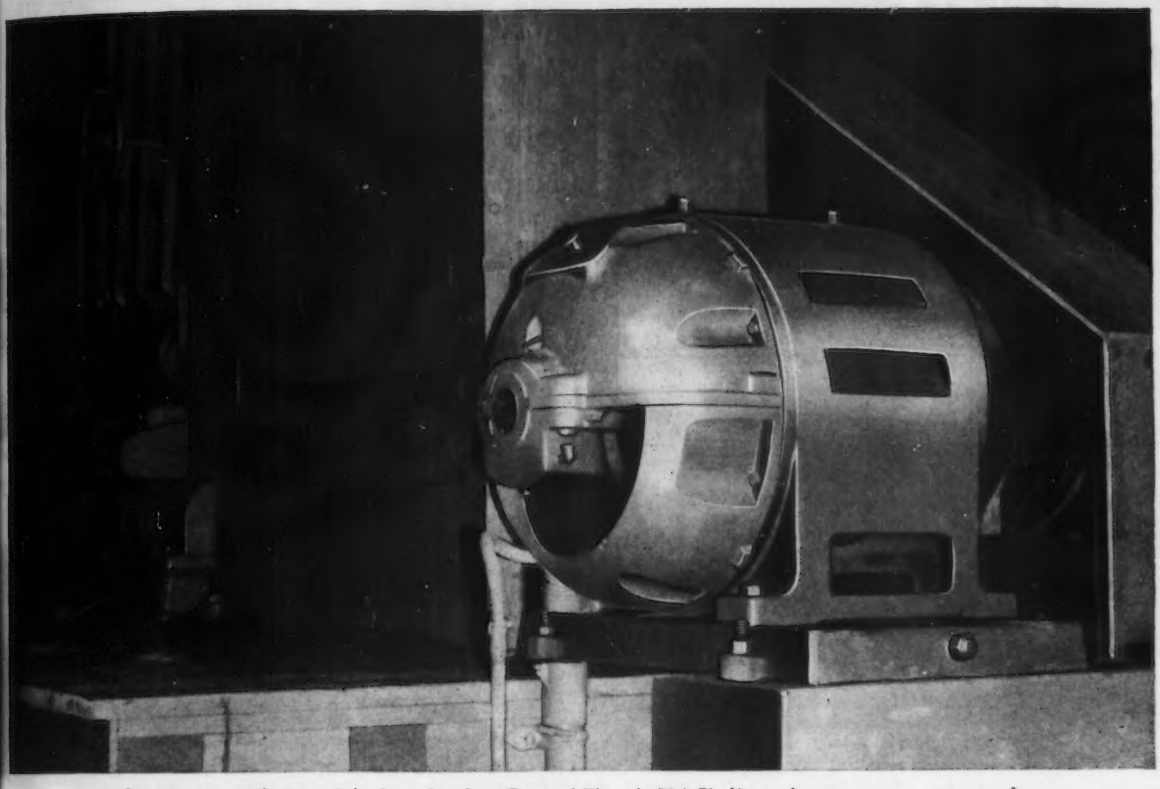
Yearly saving (assuming constant operation)	**$1600.00**



Lower operating cost is the rule when General Electric Tri-Clad* synchronous motors are used with equipment such as this horizontal band re-saw, operating almost continuously at heavy loads.

Offer Double Savings

Lower First Costs, Lower Operating Costs Can Be Realized on Large, Constant-Speed Applications in Many Industries

Before you select a drive for a large equipment providing heavy and continuous service, be sure to investigate the economics of General Electric synchronous motors. On many applications such as pumps, compressors, fans, etc., outstanding savings are available.

LOWER FIRST COSTS

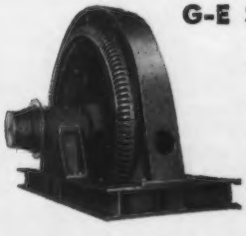
In most ratings where horsepower is equal to or greater than speed, the price tag on a synchronous motor with exciter and control is less than that of any other a-c motor with its control.

And, because a synchronous motor improves plant power factor, initial investment in distribution equipment frequently can be reduced. (The load which any new or expanded power system will carry is proportional to the plant's power factor.)

LOWER OPERATING COSTS

A synchronous motor usually has a higher full-load efficiency than any other type of motor, produces more work per dollar's worth of power consumed. Where loads are heavy and continuous, an advantage of from 0.5 to 3.0% in efficiency pays off.

Engineers with many years of field experience will tailor G-E synchronous motors and control to your job. Call in your General Electric representative—he'll be glad to discuss your particular application. And for more information on G-E synchronous motors, write for bulletins GEA-5332 (low-speed) or GEA-5426 (high-speed) to Section 770-26, *General Electric Company, Schenectady 5, N. Y.*



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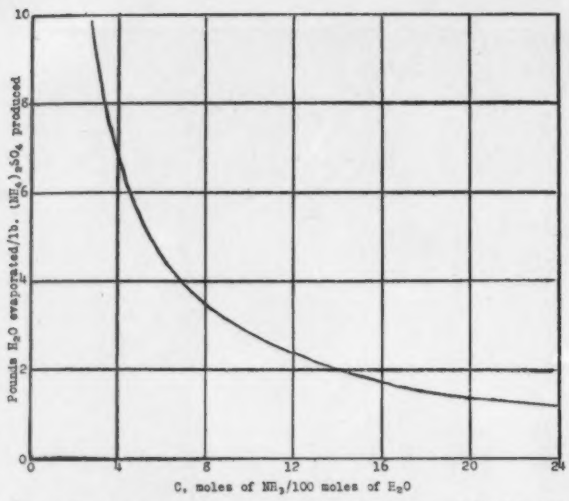

Figure 5—Evaporation Requirements for Production of $(NH_4)_2SO_4$ From Scrubber Effluent.

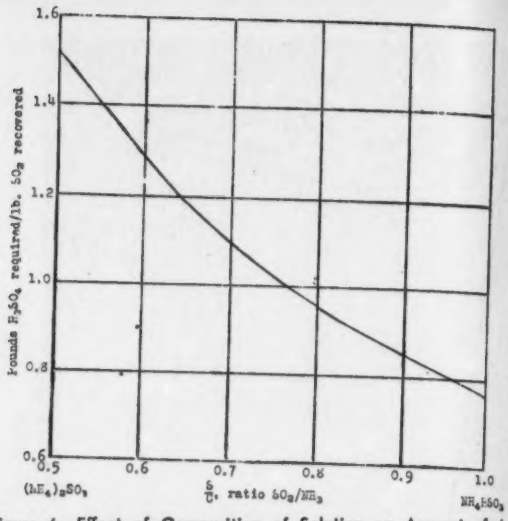

Figure 6—Effect of Composition of Solution on Amount of Acid Required to Release Sulfur Dioxide.

We are faced with the situation, therefore, in which any method of recovering sulfur dioxide from waste combustion gases from burning coal or oil, in which an aqueous solution is used for scrubbing, must necessarily operate at temperatures between 120 and 140° F. This is not true for smelter gases, or other gases with low humidities, where even though the original gas is hot, the temperature in the scrubber may not exceed 90 to 100° F.

Another important factor in the application of these solutions to the recovery of sulfur dioxide from dilute gases is the amount of spontaneous oxidation that may take place in the scrubber, or in the regenerator. If the gases contain oxygen, some will be absorbed, and unless the oxidation reaction is inhibited, formation of sulfate will occur. Sulfuric acid vapor or mist in the gases, if present, will also be absorbed. We are uncertain to what extent the ammonia solutions will be oxidized when used on a continuous basis. From pilot plant work it appears that the oxidation will be less than 10 percent and may be controlled by the type of scrubber that is used. It is known that absorption of oxygen on drop surfaces is much slower than it is on bubbles or wetted surfaces.

Regeneration of Ammonia Solutions by Steam Stripping

The problem of stripping the surful dioxide from the rich solution has been treated extensively in a previous paper *(5)*. It will be mentioned only briefly here since chemical regeneration appears to be more economical.

The minimum amount of steam required for stripping the sulfur dioxide would be given by a countercurrent process in which the steam leaves the regenerator in equilibrium with the hot solution entering. Complete equilibrium cannot be obtained under practical conditions, and the actual quantity of steam might be considerably greater, depending on the extent of the regeneration and the curvature of the equilibrium line. The concentration of the gases as well as the temperature of absorption are important factors in determining the quantity of steam required since they fix the concentration of sulfur dioxide in the solution. From this standpoint, it is interesting to note that for theoretical reasons the minimum ratio of steam to surfur dioxide cannot be less than the molar ratio of water vapor to sulfur dioxide at the wet bulb temperature of the original gases. The reasons for this is that the molar latent heats of water and sulfur dioxide are approximately the same. Consequently, the effect of temperature on the vapor pressures of these constituents will be the same. Thus, if the solution comes approximately to equilibrium with the water vapor and sulfur dioxide in the original gases, the ratio of vapor pressures will remain approximately constant as the temperature is raised. This reasoning is fundamental and has an important bearing ing on the conclusion that the steam requirements are necessarily high for the recovery of sulfur dioxide from waste gases containing large amounts of water vapor.

Regeneration with Sulfuric Acid and Make-up Ammonia

The application of ammonia solutions to the recovery of sulfur dioxide at the Trail smelter has been described in an earlier paper *(10)*. It is probably the largest installation now being operated for the recovery of concentrated gas. Here regeneration is obtainde by addition of sulfuric acid to a side stream of the effluent from the scrubbers. Rich sulfur dioxide gas and crystalline ammonium sulfate are recovered from the acidification step. Ammonia is aided to the recycle solution to make up for that removed as sulfate. The solution in the scrubber is kept at a constant pH of 5.6 to 6.0. and the equilibrium vapor pressure of sulfur dioxide is essentially zero. The gases treated come from two sources, the zinc roaster and the lead sintering plant. Both gases are initially dry and, while their temperatures are high, the wet bulb temperatures are reasonably low so that absorption can be carried out at about 95° F. The sinter gases average about 0.75 percent sulfur dioxide, while those from the roaster plant are about 5.5 jercent. The plant has been operating for nearly fifteen years and is now recovering about 400 tons of sulfur dioxide a day, divided about equally between the dilute gas and the rich gas. For several years after the operation of the plant was started, it was believed that it was necessary to maintain the exit concentration of the gas at approximately 0.2 percent sulfur dioxide to avoid loss of ammonia to the atmosphere. The considerations given above indicate that volatilization of ammonia at this temperature is probably not serious even when concentrated solutions are used. Recently lower exit concentrations have been maintained and operation as low as 0.05 percent sulfur dioxide has been attainde satisfactorily. Undoubtedly the type of scrubber used and the tendency for entrainment are important factors in the loss of small quantities of ammonia.

Application of the process used at Trail to other dilute gases, particularly those from the combustion of coal, has been considered. In the United States, the economics of the process appear to be favorable, even though large quantities of ammonium sulfate would be produced. The increasing demand for fertilizers throughout the South and Midwest and large exports of ammonium sulfate have brought the present production of this chemical to nearly two million tons per year. Approximately 850,000 tons are produced in by-product coke ovens, mainly at the steel mills. The remainder is obtained from synthetic ammonia and sulfuric acid. The present wholesale price of ammonium sulfate is about $45 a ton, much greater than the combined value of the ammonia and sulfuric acid. Be-

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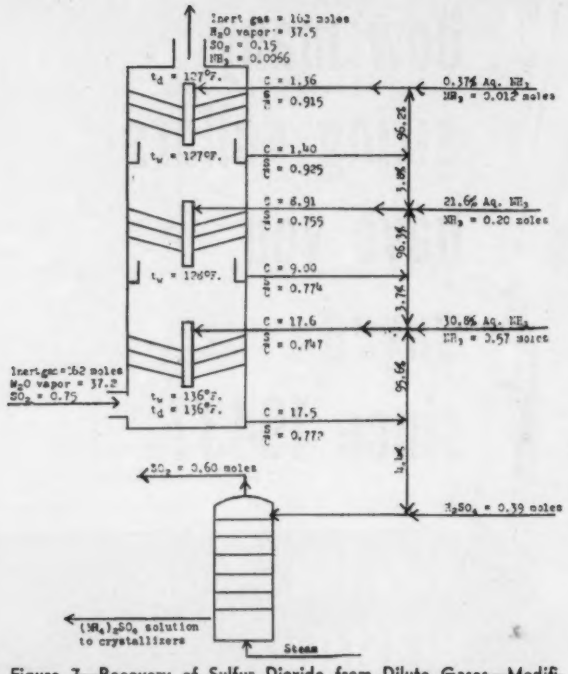


Figure 7—Recovery of Sulfur Dioxide from Dilute Gases—Modification of Trail Process with Three-Stage Scrubber and Varying Solution Concentration. Flow quantities shown are moles per unit time; t^d refers to temperature of gas, t^w to temperature of solution; gases are cooled by partial humidification before entering scrubber.

cause of the shortage of sulfur for sulfuric acid manufacture and the necessity of providing fertilizer to meet increasing food demands, the production of ammonium sulfate from by-product sulfur dioxide has considerable attractionfi particularly since the amount of sulfuric acid used in the recovery is equivalent to only about 60 percent of the sulfur dioxide recovered. The remaining 40 percent can be consumed as such, or converted into more sulfuric acid. This distribution of the sulfur dioxide can be altered to a small extent by modifications of the Trail process. Where large quantities of waste gases are available, even though concentrations are as low as 0.4 percent sulfur dioxide, it is estimated that the recovery can be accomplished at a cost of about $14 per ton of sulfur. This figure includes a charge for the ammonia lost in the process, but does not include the ammonia recovered as ammonium sulfate, which is assumde to have a net value equal to that of the ammonia and the sulfuric acid plus the cost of crystallization and recovery. Capital and operating charges are included only on the absorption plant itself. All of the rest of the plant and its operation is involved in producing the ammonium sulfate.

The Trail process has several advantages and some disadvantages for recovering sulfur dioxide from dilute gases. A valuable feature is the absence of the effect of oxidation which is a serious difficulty when other methods of regeneration are employed. Here all of the sulfate formed by oxidation is discharged as ammonium sulfate. Some oxidation actually reduces the load on the acid plant; too many may decrease the capacity of the solution for absorbing sulfur dioxide. Modifications of the process are being studied which may eliminate the difficulties of treating dilute hot humid gases, where the high absorption temperature tends to decrease the recovery efficiency and increase the loss of ammonia. If dilute solutions are used, the amount of water to be evaporated in the crystallizer is increased. Figure 5 shows the amount of water evaporated per pound of ammonium sulfate as a function of the concentration of the ammonia in the absorbent. This is independent of the ratio of sulfur dioxide to ammonia in the solution leaving the scrubber and therefore holds for any concentration of gas treated. *Figure 6* shows the amount of sulfuric acid requirde to release the sulfur dioxide from the solution as a function of the sulfur dioxide-ammonia ratio. This curve is independent of the concentration of ammonia in the solution. Since the conversion to the bisulfite is not as complete with dilute gases as with concentrated, more acid is required to release the sulfur dioxide. Because of the value of the ammonium sulfate, however, this is not serious from an economic standpoint, but it may be serious if it is desired to recover as much free sulfur dioxide as possible.

Modifications of the Trail Process for Dilute Gases

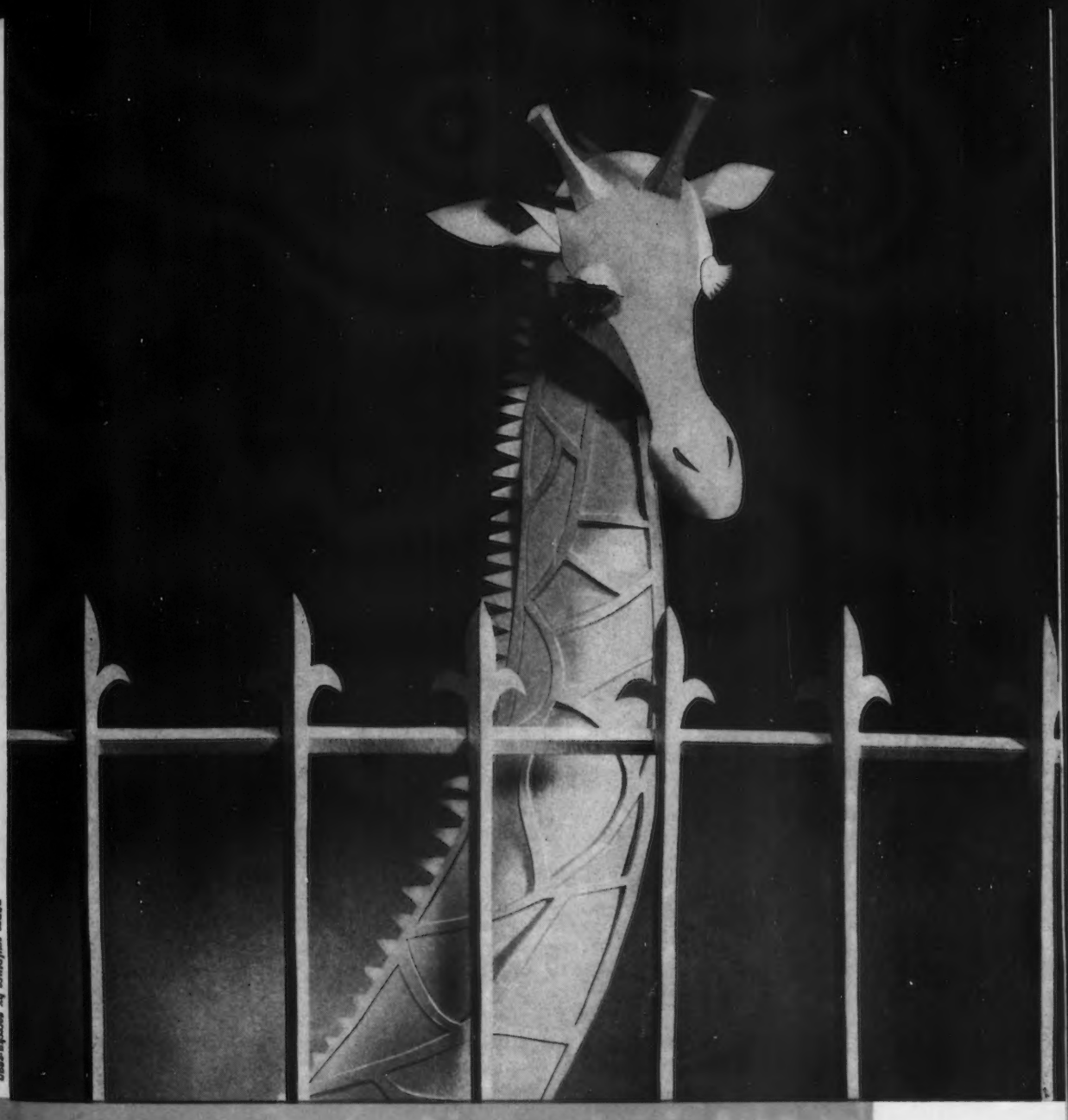
In order to overcome the difficulties mentioned above several modifications of the Trail process are suggested. Not all of these have been studied experimentally, but some of the operating conditions have been worked out in detail from the equilibrium data available.

A. Multistage Scrubbers with Variable Solution Concentrations

Figure 7 is a flowsheet by which the loss of ammonia into the waste gases can be prevented and a high concentration of the solution in contact with the entering gases may still be maintained by using multistage scrubbers with recirculation of the solution and addition of ammonia to each stage. The quantities shown are examples of operation and do not necessarily represent the optimum conditions. Actually, no allowance is made for oxidation of the sulfite in the scrubber. This would alter the concentrations somewhat since it would be necessary to withdraw an amount of sulfate from the circulated steam equal to that which is formed. Furthermore, the calculation are made on the basis of using a cyclone spray scrubber consisting of three stages. While this scrubber is simple and gives high absorption coefficients, it has the disadvantage of providing crossflow rather than counterflow. Further considerations have shown that it may be advantageous to substitute a section of slat or grid packing for the first two stages of the spray scrubber. It should be noted that the temperature of the solution increases from top to bottom, corresponding to the equilibrium saturation temperature, as the concentration increases. As shown by the humidity and temperature, the original gases are assumde to be cooled by partial humidification before they enter the scrubber. This prevents evaporation of water from the solution.

B. Combination of Steam and Stripping and Acidification

When it is desired to increase the ratio of sulfur dioxide to the acid used in forming ammonium sulfate, partial stripping of the effluent solution with steam may be used. While steam regeneration is generally more costly than acidification and sulfur in the form of ammonium sulfate is more valuable than that in sulfur dioxide, this situation may not exist in the pulp industry. Here sulfur dioxide is the desired product and cheap steam can be generated by flashing of large quantities of hot water. In steam regeneration, sensible heat is required to raise the temperature of the solution to the regeneration temperature and latent heat must be supplied to release the sulfur dioxide along with the required ratio of water vapor. Ammonia vapor from the hot regenerated solution passes up into the stripping column and is removed by reaction with sulfur dioxide in the upper section. Some ammonia may actually pass out into the water condenser, but this is immediately removed by reaction with the acid condensate and does not appear in the rich sulfur dioxide gas. Even



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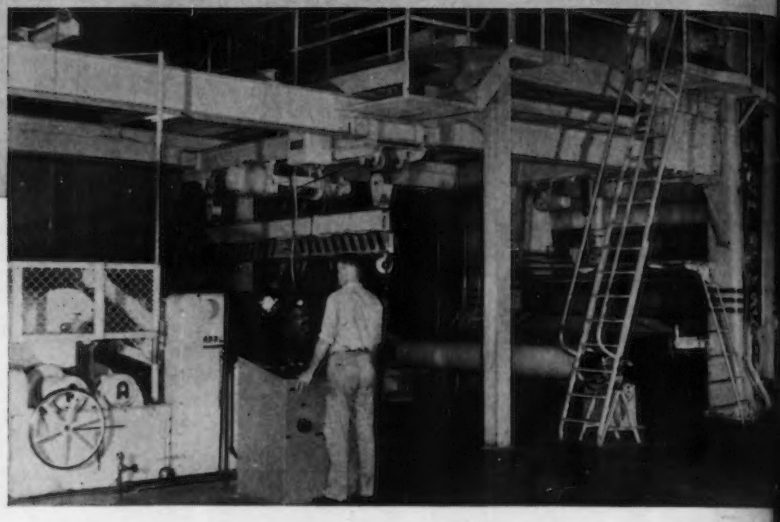

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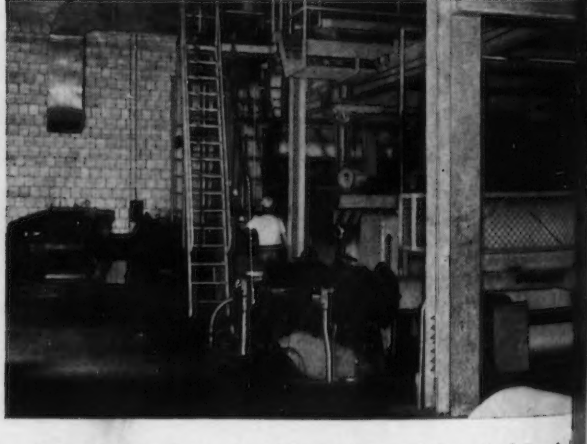

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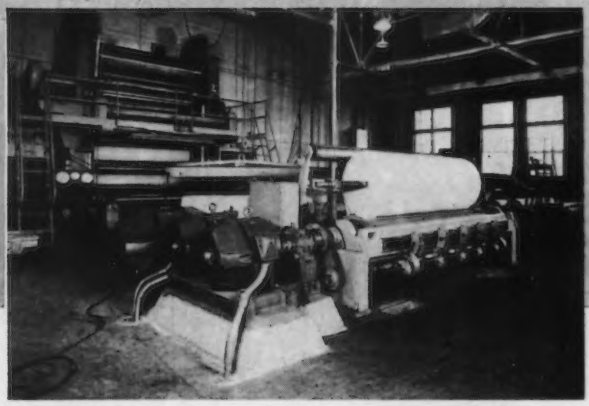

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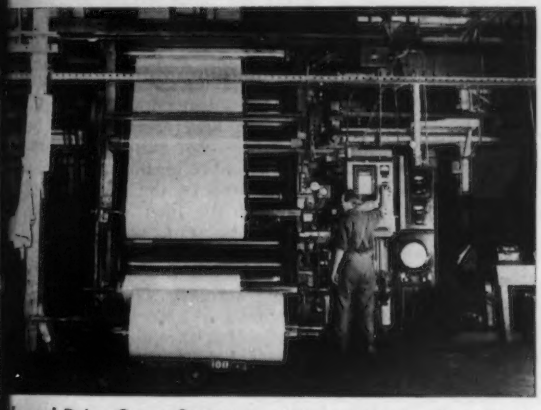
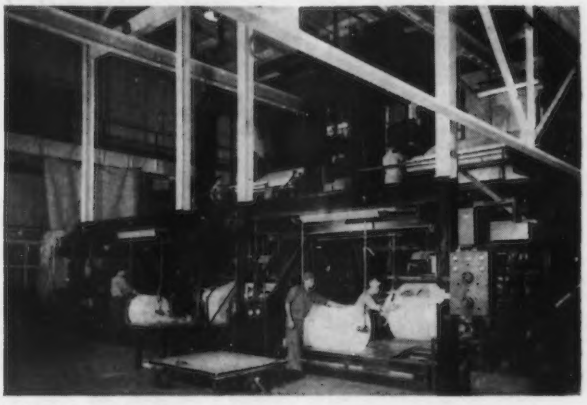


kaged Drive Saves Space on this supercalender instal-on, driven by a Reliance V*S Drive with electronic trol. The electronic unit provides for timed-rate eleration and deceleration, pre-set speeds and im-ved speed regulation.



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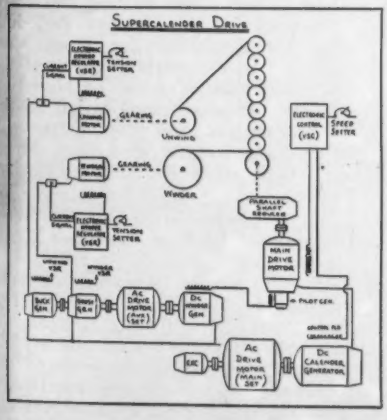

Typical Reliance-engineered Drive for supercalender with shaft-type unwind and shaft-type winder is illustrated here. Drive consists of all electrical equipment necessary for power and control. In addition to variable voltage control, motor field control is incorporated to provide increased torque for operation below maximum line speed. Electronic units provide timed-rate acceleration and deceleration, pre-set speeds and improved speed regulation in operation of supercalender and tension regulation in operation of unwind and winder.

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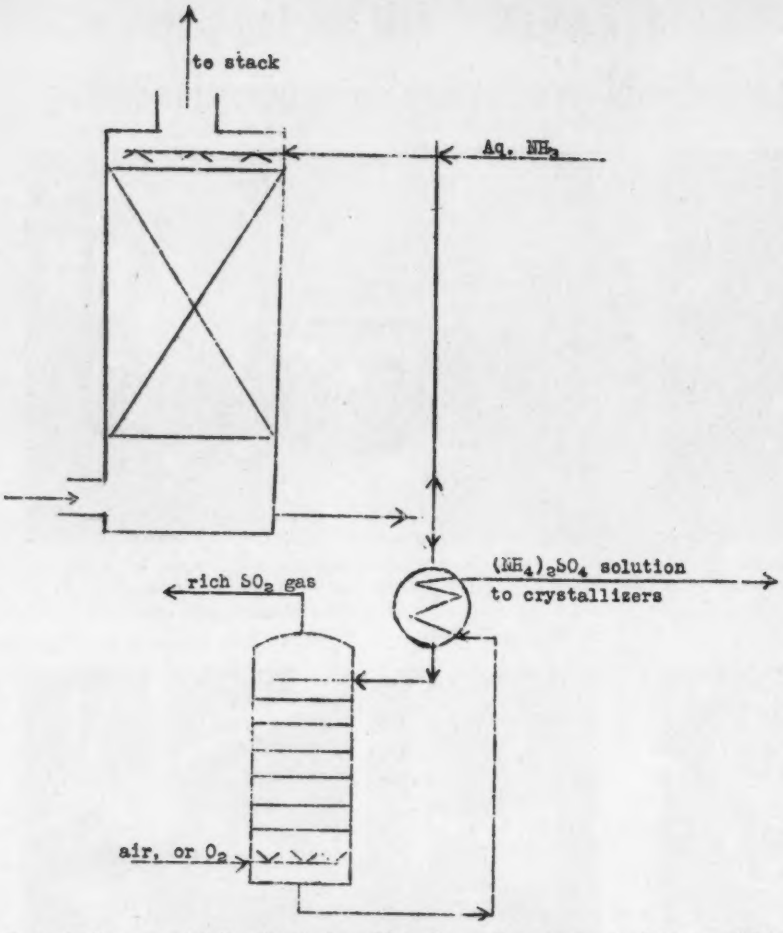

Figure 8—Recovery of Sulfur Dioxide from Dilute Gases—Regeneration by Oxidation of Sulfite-Bisulfite Solution and with Makeup Ammonia.

though all of the effluent solution from the scrubber is stripped with steam, it is not possible to remove all the sulfur dioxide recovered in this way. Some solution must be removed to dispose of sulfates formed by oxidation. For economy, the ammonia in this portion must be removed in some form. Several methods of desulfating the solution have been used, but these appear to be much more complicated than removing a side stream with acidification. Another advantage of this method is that concentrated sulfur dioxide gas can be obtained to fortify the cooking liquor.

C. Oxidation of a Solution in Place of Acidification

Although fundamental work on this process is not completed, it is attractive because it eliminates the use of sulfuric acid for releasing the absorbed sulfur dioxide. The oxidation is carried on directly in the solution by bubbling air or pure oxygen through a portion of the scrubber effluent. Certain catalysts greatly increase the rate of oxidation of sulfite-bisulfite solution, particularly at high temperatures. The reaction results in lowering the pH and increasing the vapor pressure of sulfur dioxide. By controlling the rate of oxidation, highly concentrated sulfur dioxide may be obtained. This can be used for making cooking liquor, or for conversion into sulfuric acid as desired. If all of the sulfite in the solution is oxidized to sulfate, no acid is required in the recovery process. The oxidized solution is sent to the evaporator-crystallizer for recovery of ammonium sulfate, and ammonia is added to the recycle solution to make up for that converted into the sulfate. *Figure 8* is an example of the flow-sheet of such a process.

Applications of Sulfite-Bisulfite Solutions to Pulp Mill Problems

Pulp mill chemists are familiar with the equilibria that exist between dissolved sulfur dioxide and calcium oxide. The development of the magnesia and ammonia processes for pulping has extended their information to the other systems which have certain advantages in quality of the pulp and the ease of disposal of the waste liquor. The principles set forth in this paper involve nothing new as far as the chemistry of the solutions is concerned. Emphasis is placde on a different use of these solutions by which sulfur dioxide may be conserved, or recovered from waste gases. The difference lies in the concentration of sulfur dioxide being considered. Attention is given to the sulfite-bisulfite range, whereas, in pulping operations, free sulfurous acid must exist in equilibrium with higher partial pressures of sulfur dioxide. By focusing attention on the lower range several possibilities for conserving sulfur dioxide are suggested.

Conservation of sulfur dioxide is already practiced at many calcium base sulfite pulp mills. It is generally agreed that material savings can be accomplishde by proper control of the digester pressures before blowing and the use of some kind of recovery process on the blow gases. Beyond this, there is little hope of finding other sources of sulfur dioxide from the pulping process, unless the chemicals in the waste sulfite liquor can be recovered. The magnesia process is designed to do just this. The sulfur dioxide in the gases from the combustion of the concentrated waste liquor is reabsorbed in a suspension of magnesium oxide. In the ammonia process, only recently has attention been given to the recovery of sulfur dioxide from the waste liquor. Burning of the concentrated waste liquor in this case destroys the ammonia and converts most of the sulfur compounds into sulfur dioxide. While the concentrations in the stack gases are low, recovery can be accomplished by absorption in make-up ammonium sulfite-bisulfite solutions. In the Kraft process, the recovery of sulfur values in the form of salt cake fume is now being accomplished in several mills in Canada and the United States by means of the newly developed Venturi scrubber *(1)*. This device simultaneously absorbs fifty percent of the sulfur dioxide present in the stack gases.

If flue gases from the combustion of coal are to be considered as a source of sulfur dioxide for pulp mills, one of the methods described above may be considered. An additional complication undoubtedly exists in the large quantities of dust carried by these gases, especially if the coal is fired in the pulfying of solutions which have been verized form. The settling and clari- been studied *(8)*. The principal diffi- used for scrubbing flue gases have culty lies in the soluble portion of the ash which dissolves in the absorbing solution. If some modification of the Trail process is used, this impurity will be discharged in the ammonium sulfate and might affect its value ase a fertilizer.

Sulfur dioxide is readily absorbed in a slurry of lime, or limestone. This process has been used in two power stations in England for removing sulfur dioxide from the stack gases *(11)*. It is complicated by the tendency of both calcium sulfite and calcium sulfate to form scale on the surfaces of the scrubber. In order to prevent this, a thick slurry of these crystals was recirculated with the make-up lime. Because of the cost of maintaining the

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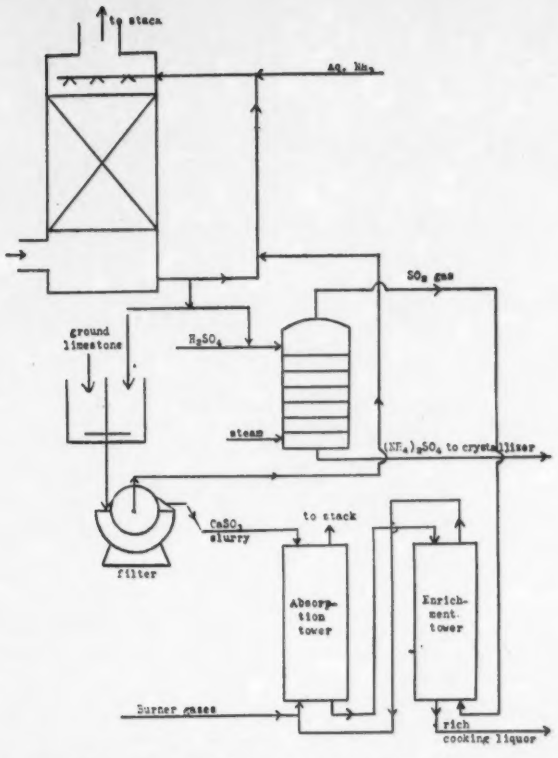

Figure 9—Recovery of Sulfur Dioxide from Dilute Gases—Regeneration by Conversion to Calcium Sulfite for Cooking Liquor.

wood grid scrubbers, this system has not been used since the war.

For use in pulp mills, scrubbing with lime slurry has the disadvantage of sulfate formation. The flowsheet shown in *Figure 9* is a possible method of recovering sulfur dioxide from stack gases without danger of carrying the sulfates into the cooking liquor. Here a part of the scrubber effluent is treated with lime, or ground limestone (after clarification to remove suspended dust particles). The precipitated calcium sulfite is filtered and washed on a continuous drum filter. An inert atmosphere may be necessary to prevent oxidation of the sulfite. The filtrate containing ammonium sulfite and sulfate is returned to the scrubbing cycle. Another portion of the scrubber effluent containing an amount of sulfate equal to that formed by oxidation is treated with sulfuric acid to form ammonium sulfate, which is recovered along with accumulated impurities. The calcium sulfite is slurried and passed to the absorption tower where it is converted into cooking liquor in the usual manner. The concentrated sulfur dioxide from the acidification may be used to enrich the cooking liquor to a higher acid value.

Summary

The possibilities of recovering sulfur dioxide from dilute waste gases are reviewed from the standpoint of providing an additional source of the gas for use in pulp mills. The equilibrium vapor pressures over solutions of the ammonia - sulfur dioxide - water system indicate that solutions of ammonium sulfite-bisulfite may be used to recover the gas with good efficiency and without serious loss of ammonia even if the concentration of the original gas is as low as 0.4 percent. Some modification of the process used at the Train smelter appears to be the most economical. About half of the sulfur dioxide recovered must be converted into ammonium sulfate and the other half may be used as a concentrated gas for the preparation of cooking liquor or other purposes. The value of the ammonium sulfate as fertilizer is greater than the combined value of the sulfur or ammonia. The equipment used in the process is relatively simple; estimates have indicated that, even with dilute gases, recovery can be made at a cost less than the value of the sulfur.

The recovery of sulfur dioxide from stack gases from the combustion of coal by treatment with lime or limestone slurry is considered. Impurities from the dust collected in the absorber and the formation of sulfate are expected to cause difficulties in making cooking liquor from this source. A flowsheet is suggested for a possible process using ammonia solutions for absorption of the sulfur dioxide followed by precipitation of calcium sulfite which is sent to the acid tower. Impurities are removed in a side stream which is treated with sulfuric acid to produce impure ammonium sulfate and concentrated sulfur dioxide which may be utilized to make a stronger cooking liquor. In this way, approximately 50 percent of the sulfur required in the process may be recovered from stack gases.

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Farm sorage in many instances is none too good at the best with much feed being stored, for instance, in damp poultry houses. We know definitely that the multiwall paper bag keeps this dampness out and that our claims arising from moldy feed have been reduced materially because of this type of protection.

The multiwall paper bag is a one-trip container which because of its low cost can be destroyed after it has served the purpose for which it was intended. However, through a new roughage type feeding program which was developed at Purdue University and commercially produced by us for ruminant type animals, the feeding of the sacks to the cattle just as we now do corn cobs and other waste material, may now be possible. We are working on this problem and hope to soon announce this new "ice cream cone" idea where the container is fed right along with the feed contained.

But in any event it is a one-trip container not lending itself to the spreading of disease which is a big problem in the livestock and poultry business which the feed industry serves. The practice of gathering up used sacks from livestock and poultry farms all over the country where collectively, every known dsease is prevalent, and reusing them to sack and ship feed to other customers who may have thousands of dollars worth of livestock and poultry on *their* farms is exceedingly risky business even if the sacks have *supposedly* been recleaned.

From the standpoint of sales management and advertising, we also have to think of the best possible display for our trade mark and brand name. The 50 pound multiwall paper bag furnishes and ideal printing surface and affords excellent printing and trade mark reproduction possibilities. Not only does the printing go on good and look good, but it stays that way and presents a clean neat, attractive package with an eye appeal impossible with bulky irregular shaped cotton or burlap bags of porous texture.

Good point-of-sale displays are a very important phase of most any merchandising program and the excellent stacking qualities of this container lend themselves exceedingly well to building clean, bright, bright attractive displays.

In making a complete change-over in an industry as big as the feed business, it is of course a slow process. However, in my own firm, our change-over was exceedingly rapid and the public acceptance was exceedingly gratifying. We feel that a great deal of this speed in change-over and public acceptance was due to a carefully planned sales promotion program in giving birth to this 50 pound multiwall paper bag which we pioneered in our midwest area.

Our sales philosophy is built around the idea that people buy feed to produce meat, milk, and eggs at the lowest possible cost and not as a means of securing some sideline advantage or secondary use out of the feed container.

In our mill we first packaged one line of products, namely swine supplements, in the 50 pound paper package and made its availability aptional on other feeds. The acceptance was so great and so universal that within thirty days we switched to the 50 pound paper bag as a standard package and issued our price lists on that basis enabling us to reduce wholesale quoted prices by about 3 percent and put the other type packaging (cotton, dress print, and burlap) on an optional basis.

(Continued on page 50)

[1] Presented before the Packaging Conference of the American Management Assn., Atlantic City, N. J., April 1-3.

IT DOESN'T COST A CENT

to get tubing advice that may save you thousands

WE'RE not exactly picking that figure out of the air when we say we may be able to save you thousands of dollars on your tubing purchases. Many tubing users have been able to save large amounts because they found a better type of tubing for their particular use.

As the world's largest manufacturer of tubular steel products, we've had a chance to analyze thousands of tubing installations. We've recorded our findings and the results are available to you.

If you are having trouble with high pressures, corrosion, heat or exposure, give us a chance to help you the next time you are ready to order tubing. Even if you consider your problem unique, remember that our case history file may contain a problem and solution similar to yours. A problem that is entirely new to you, may be one that we have encountered before.

This National Tube service is particularly useful today, when so many grades of alloy and stainless tubing are in short supply. We may be able to help you choose an alternate grade of steel that will do a good job for you at little or no increase in cost. For more information, write National Tube Division, United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

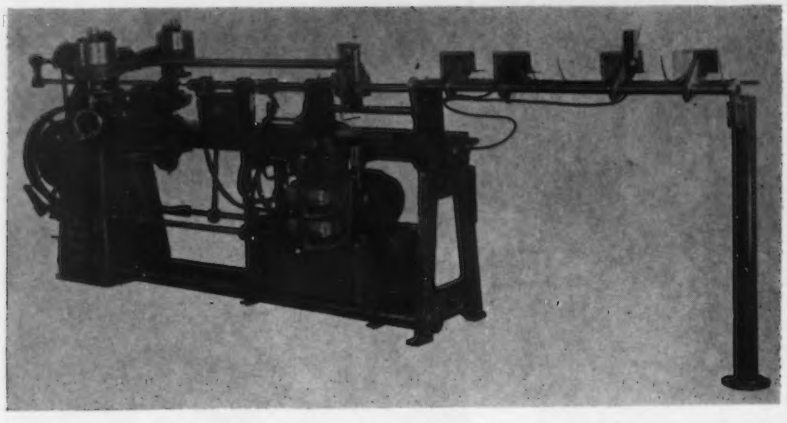
NATIONAL TUBE DIVISION, UNITED STATES STEEL COMPANY, PITTSBURGH, PA.
(TUBING SPECIALTIES)
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S NATIONAL *Seamless* PIPE AND TUBES

UNITED STATES STEEL

What's New in Equipment
Supplies and Materials



Spiral Core Winder

To meet the need of converters for long spiral-wound cores of uniform diameter and length and with clean-cut ends, the spiral core winder was developed by Paper Converting Machine Co., Green Bay, Wis. Incorporating a hydraulically-operated cutoff head equipped with score-type slitters, the unit is said to be valuable to users of automatic winding and slitting machines.

Winding head consists of the orthodox gear driven winding drums and belt, but the cutoff unit is an entirely separate unit, having no mechanical connection with the winding head. This cutoff head is fitted with a hydraulic cylinder, together with a suitable hydraulic pump, reservoir, pressure regulator and flow control valves. Using this hydraulic system, a long constant velocity stroke is obtained which can be varied to suit the speed of the core as it travels down the winding mandrel.

A second hydraulic cylinder is used to actuate a bar cam controlling the motion of the score slitters against the hardened end of the mandrel. To control the length of the finished core, a limit switch, fitted with a metal "target," is used. When the wound core makes contact with this "target," it actuates the hydraulic system, starting the score-slitter carriage which cuts the core to length. This target mounting is adjustable, offering a simple means of varying the length of the finished core.

A core ejector, capable of moving the finished cores to the rear and parallel to the machine, completes the handling system. This ejector consists of a series of metal fingers powered by a solenoid. Immediately after the cores have been cut, these fingers carry them to the rear and parallel to the machine, where they may be collected in a dolly or other suitable carrier.

Other refinements which have been incorporated in this machine include a heated, thermostatically controlled front adhesive unit and roll stand, and a rear roll stand arranged for a flying web splice.

Cushioning Material

The new cushioning material made from cotton and faced and backed with tissue, creped kraft, rust-resistant or anti-tarnish paper, corrugated board, muslin or plastic is now commercially available as an interior packaging material. Known as Celluliner, the product of Gilman Bros. Co., Gilman 1, Conn., it is at once a new equipment item, a new paper use, and a competitor to crepe wadding–woodpulp cellulose.

Comes in rolls or sheets 4" to 80" wide, .125" to 2.0" thick, or can be die-cut to any special shape at factory. According to the manufacturer, it meets or exceeds Fed. Spec. UU-C-843, can be flame-proofed or mildew-proofed; is chemically neutral, won't tarnish, corrode, or chemically alter any material or product, and is light, flexible, soft and strong.

Arc Welded Thin Diaphragms

The Bristol Co., Waterbury 20, Conn., announces its new factory facilities for making arc-welded diaphragms of extremely thin stainless steel, Ni-Span C, and phosporous bronze.

Diaphragms in thicknesses of from 0.0015 to 0.005 of an inch for pressure transducers, pressure elements, and seals for many applications, are being arc welded. Specially developed equipment makes it possible to successfully arc weld these extremely thin diaphragms, it is stated.

Beatapulper

A unit that pulps, defibers and refines paper stock all in one operation is being introduced by Cowles Company, Inc., Cayuga, N. Y.

Known as Beatapulper, it features the complete treatment of mixed furnishes. The dispersing action of the impeller, plus beating action of the knives, permit chemical treatment, size, alum and color to be added at any time during the batch cycle.

Fibers are selectively picked up by an advancing knife edge and brought into mechanical contact with a stationary bedplate or refining disc. Bedplate is constructed of heavy steel and has radial grooves 3/16" wide by ¼" deep. Due to the flow from the impeller ring these grooves are kept full of moving stock. Anything small enough to get into the grooves, like wire or nails, is sheared off by the knife. Trash too large to enter the grooves is pushed away by the impeller and knives.

The unit is designed so that pressure between the knives and bedplate can be varied and controlled by means of a regulating valve in the cylinder supply line. The entire assembly is mounted on a heavy back plate and bolted to pulper tub.

Protective Coatings for Casein Storage

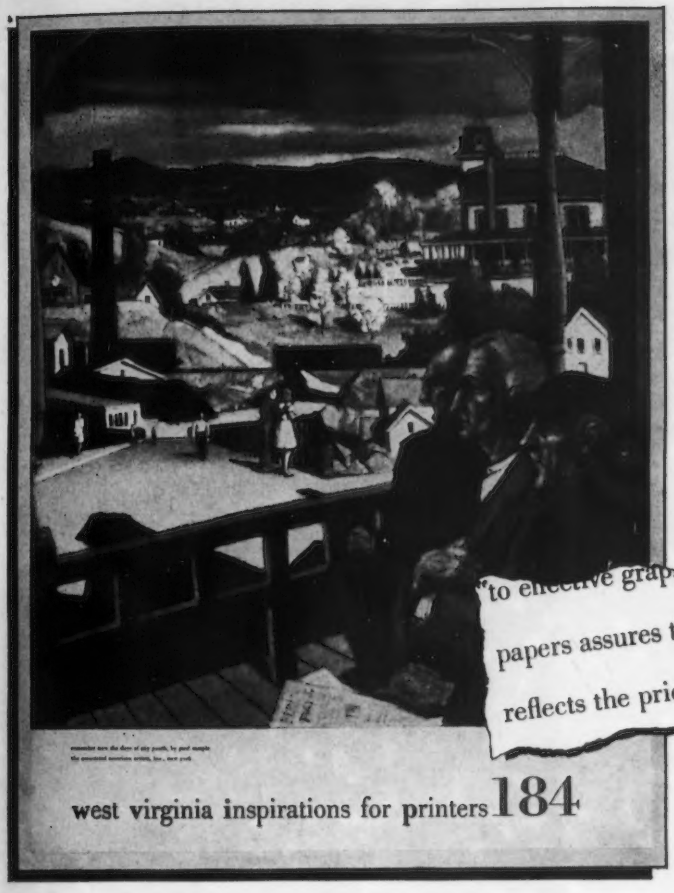
Mixing and storage tanks for casein solutions with pH values of seven and higher can now be protected against corrosion with Lankote 400 series coatings, according to J. Landau Co., 221 Wooster St., New York 12, N. Y.

Lankote 400 series coatings are held to be excellent under constant immersion conditions for a wide variety of alkaline, water, acid and salt solutions. They are supplied in nine stock colors and can also be applied to concrete and masonry.

Literature and samples are available from Lankote Division, J. Laudau Co., 221 Wooster St., New York 12, N. Y.

Speedy Ink Changes

Development of a new solvent which permits a change from black to yellow in 10 minutes of wash-up time is announced by Harry H. Rogers Co., Inc., 5331 South Cicero Ave., Chicago 32, Ill.



west virginia inspirations for printers 184

And West Virginia Uses Huber Clays

"to effective graphic presentation. the selection of fine papers assures the graphic sincerity which reflects the pride of the advertiser in his own product."

nothing upholds these words more than west virginia pulp and paper company's famed inspirations for printers... each issue truly representative of the highest quality in the graphic arts today. west virginia knows that high-fidelity printing demands quality raw materials for their finished papers... and west virginia turns to huber as a source for filler and coating clays.

huber's 25 years of experience in clay mining and production... their 13 vital laboratory tests* ...assure product uniformity from one clay carload to the next. each huber clay is designed to meet the exacting needs of today's printing requirements. if you want the maximum performance from your papers, try huber clays. write for free working sample.

note: these paragraphs set in lower case, with boldface type used as capitals—an experiment featured in west virginia inspirations, series 184.

HUBER

ONE OF THE WORLD'S LARGEST CLAY PRODUCERS

MINES & PLANTS: LANGLEY, S. C., GRANITEVILLE, S. C., AND HUBER, GA.

J. M. HUBER CORPORATION, 100 PARK AVENUE, NEW YORK 17, N. Y.

Quality Clays for the Paper Industry

HI-WHITE—low cost airfloated filler clay, mined in Georgia, of high brightness, fine particle size, minimum abrasion. Tested regularly each half-hour during production.

PARAGON—produced in South Carolina, this low cost airfloated filler has a slightly larger particle size than Hi-White, its Georgia counterpart. Refined to the same close specifications with respect to abrasion and uniformity.

WWF—a Georgia water-washed filler of high, dependable brightness. Available in lump form for use where this type is preferred over the fluffier airfloated fillers. Also available pulverized.

HYDRATEX—a Georgia coating grade of medium particle size distribution and priced accordingly. Quality controlled throughout. Lump or pulverized.

SPECIAL HYDRATEX—a Georgia coating grade of fine particle size, with excellent covering power and flow characteristics ideally suited to certain coating methods. Lump or pulverized.

X-43—a fine particle Georgia coating clay of low viscosity and high brightness particularly well adapted to high solids coating. Lump or pulverized.

X-44—a low viscosity Georgia coating grade containing a minimum of soluble salts; excellent for color pigmentation. Lump or pulverized.

HYDRASPERSE—a drum-dried low viscosity, high brightness, fine particle, Georgia coating grade, in flake form, with the dispersant already added. Saves "make down" time and assures thorough dispersion in practically any equipment.

*1. Brightness 2. Viscosity 3. Particle Size 4. pH 5. Screen Residue 6. Adhesive Demand 7. Gloss 8. Opacity 9. Dispersion 10. Soluble Salts 11. Abrasion 12. Moisture 13. Suspension

Named Rogersol 1-2-3, the solvent is suited for offset presses, or any press that has a washer blade, and is said to test to complete removal of every bit of color run on a set of rollers and to leave them looking like new.

Each of the three solvents used in the product has a high flash and meets with fire law specifications. The product is not harmful to metal, rubber (glue-glycerine rollers excepted), to hands or eyes, and is not toxic, the manufacturer claims, who states that the product is a boon to lithographers.

All Purpose Roll Coater

The new all purpose roll coating unit was developed to meet the coating requirements of many mills. According to the manufacturer, John Waldron Corp., P.O. Box 791, New Brunswick, N. J., its design permits a wide variety of coating, impregnating and laminating operations.

Priced according to specifications depending on web width and coating arrangement, the machine will handle all types of film forming materials in dispersions, emulsions or solutions. It can be adapted to sheet coating or to continuous web coating of paper, textiles, plastic films, foils, etc.

Among the many uses for which it may be considered are: laminating adhesives to paper; coating of paper; impregnation; application of heat sealing adhesives.

Lemol Polyvinyl Alcohol

From the large number of possible combinations of viscosity and degree of hydrolysis, American Monomer Corp., Leominster, Mass., has selected six standardized and widely used grades of polyvinyl alcohol for manufacture under the trade name Lemol.

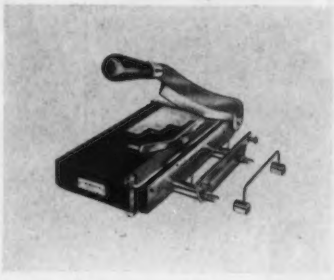
According to the manufacturer, the Lemols provide tough, water soluble resins combining high tensile strength, adhesiveness and tear resistance with extreme inertness to aging, oxidation and bacterial action.

Roughly speaking, they are broken down into two groups: completely hydrolyzed and partially hydrolized, and are available in high, medium and low viscosity.

Complete data furnished gratis by manufacturer.

Precision Strip Cutter

The Precision Strip Cutter produced by W. & L. E. Gurley, Troy, N. Y., is designed to facilitate the cutting of material samples into various lengths and widths.



It provides an extra heavy precision-ground blade and bedplate mounted on a sturdy hardwood board. A clamping bar holds the material during cutting. Templates and easily adjustable guide bars insure the cutting of exactly dimensioned samples essential to accurate tests, it is stated.

Badger Resumes Ponding Program

PESHTIGO, Wis. — Hauling of sulphite liquor from Badger Paper Mills to reduce stream pollution was resumed this week. Mill executives plan to continue last summer's roadbinder program along with an experimental ponding program that has been undergoing tests all winter.

Last fall, with the approval and close supervision of state pollution authorities, the Badger mill purchased a stainless steel truck and began hauling spent liquor and dumping it in an isolated pond two miles distant. This went on all winter, and more than five million gallons were thus diverted from polluting the Peshtigo River. Meanwhile state pollution experts have been checking all water courses in the vicinity and as yet have found no trace of leakage. About a month ago local road authorities urged suspending the program lest the heavy liquor trucks do major damage to wet roads left vulnerable by the spring thaw. This official ban has just now been lifted, and the hauling truck has gone back to work.

Badger has one representative making calls on town and county highway commissioners to discuss with them how to improve their unpaved roads at low cost by using Badger's sulphite roadbinder for the bare expense of hauling and spreading. This program had its start in 1951, and is expected to keep at least one spreader truck busy until frost time.

Customs Court Cases

A shipment of so-called standard newsprint from Canada has been classified for duty as printing paper because it bulked in excess of the maximum 4 points permitted by the definition of standard newsprint according to a report by Warren B. Bullock, Manager of the Import Committee of the American Paper Industry. The paper was entered at $145 per ton, and sold in this country at $200.

Other recent cases involving newsprint included the assessment for duty of two shipments of canary news imported from Canada through Malone and Newport, Vt., which had been claimed duty free as standard newsprint. So-called cull news imported from Canada as standard newsprint has been held for duty because it was outside the weight provisions of the definition of standard newsprint.

Newsprint cases abandoned by the importer in the United States Customs Court included two shipments at Seattle from Holland, held to have an excess of ash, one shipment at New York, with excessive ash content, and a second New York case in which the imported paper was outside the definition in both weight and ash content. In all the above cases the importations had been classified for duty as printing paper at 1/5 cent per pound and 5 percent and denied free entry as standard newsprint.

Forty-five cases involving shipments of coffee filtering paper imported at Pacific Coast ports have been decided by the United States Customs Court which held the paper to be dutiable at 6 cents per pound and 20 percent as tissue paper and not as filtering paper at 5 cents per pound and 15 percent. Some of the cases have been pending in the Courts since 1931 according to Warren B. Bullock, Manager of the Import Committee of the American Paper Industry.

Seventeen cases have been abandoned in United States Customs Court by various importers who had claimed that the rate of duty of 1 cent per pound plus 5 percent should be levied on hand made drawing paper instead of the rate assessed by Customs officials for hand made paper of 1½ cents per pound plus 7½ percent. In a test case the Customs Court sustained this classification as hand made paper as being more specific.

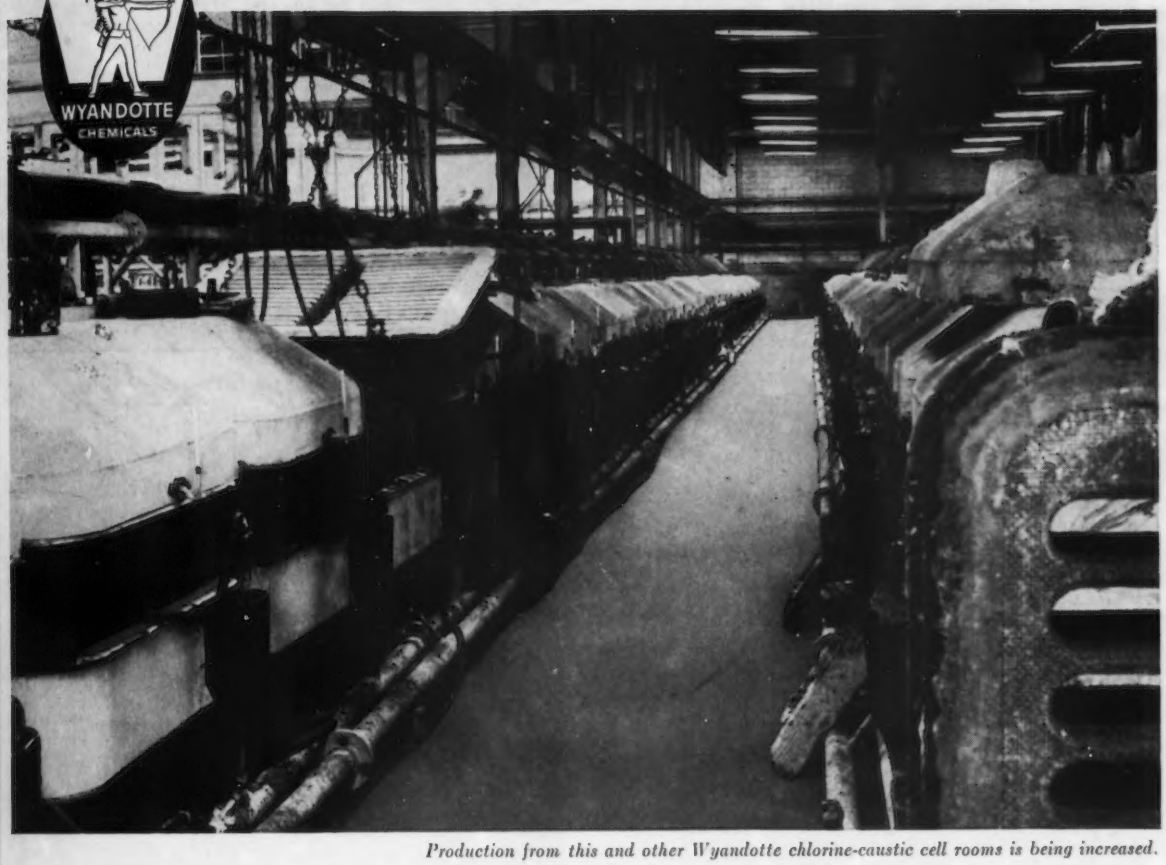
Paper Men Get ACA Awards

The Association of Canadian Advertisers has awarded a gold medal, highest annual award by the association, posthumously to Lee Trenholm, who prior to his death was associated with the Abitibi Power & Paper Co., Ltd.

In addition, Neil B. Powter, of Montreal, Que., associated with the Howard Smith Paper Mills Ltd., was given a similar award for his outstanding contributions to Canadian advertising.

These and other awards were presented by Hedleigh T. Venning, newly elected president of the Association.

Dependable Source for Chemical Raw Materials



Production from this and other Wyandotte chlorine-caustic cell rooms is being increased.

Wyandotte expands chlorine production

Current expansion of chlorine production at Wyandotte is intended primarily to meet the needs of fast-growing market requirements.

If your needs for chlorine are increasing, let us know what you expect them to be; and if you have any chemical problems arising from increased production, tell us about them. That way we can do a better job of servicing you, now and in the future.

Centrally Located

Wyandotte, with over 62 years' experience, has the know-how and facilities to take care of its customers. Our central location, on one of the world's great waterways, on major railroads and several major truck lines, helps assure a steady, continuing supply of chlorine, soda ash, bicarb, caustic and other chemical raw materials.

Wyandotte's company-owned resources are your guarantee that we can produce and deliver. Read the "Bulletin Board" for the latest facts on other Wyandotte products. And for further information, write *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in Principal Cities.* *REG. U.S. PAT. OFF.

BULLETIN BOARD

Purecal:
A widening number of paper consumers report exceptional success with stock (particularly offset) coated with this pure, precipitated calcium carbonate. Purecal M is a pigment of highest purity, ultra-uniform, grit-free, easily dispersed, white-white. Write for data, samples.

Soda Ash, Caustic:
Supply of these chemicals is currently good; and we are expanding our production facilities, assuring a reliable supply to meet growing demands of the paper industry.

Carbose*:
New Wyandotte Carbose VL is the lowest-viscosity sodium carboxymethylcellulose ever available. It is now being used with outstanding success in calender-stock applications. Production of Carbose VL is being expanded to meet increasing demands. Details and samples free.

Kreelon*:
Experience has proved that Kreelon 4G, Wyandotte's high-solubility alkylarylsulfonate detergent, in proper formulation, can improve the deinking of wastepaper 10-20%. Let our representative call on you. Samples available.

Wyandotte CHEMICALS

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$116.00/ —
Sheets	131.00/ —

Kraft— per cwt. 50# base wgt. OPS Ceiling CPR 88

F.o.b. Southern & Western integrated mills. C.l. Freight allowed up to $10 a ton.

Standard Wrapping, ctr. rolls	$7.75/ —
Butchers, counter rolls	8.25/ —
Standard Bag, mill rolls	7.50/ —
Shipping Sack, mill rolls	7.75/ —
Gumming, mill rolls	8.00/ —
Asphalting, mill rolls	7.75/ —
Envelope, Sub. 20, mill rolls	9.25/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$1.90/$2.05
Wh. No. 1 MG	1.90/ 2.05
Wh. No. 1½	1.80/ 1.90
Wh. No. 2	1.60/ 1.65
Kraft Anti-Tar 20-30	1.90/ —
White Anti-Tar 20-30	2.20/ —

Toilet— per case of 100 rolls—1M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5, 650 sheets	6.65/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.81/10.14
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x4½, 2-ply	$8.95/10.37
4½x5, 2-ply	10.25/10.75

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9½x9½	$6.40
Br. Sr. M'tif'd 9½x12	4.40
Br. Jr M'tif'd 9½x9½	3.90
Br Jr Sgl. fold 9½x10¼	3.95
C-Fold 10¼ min. x 14 max.	5.90/ 6.64
Blchd. 7½x11, 48/50 rolls	6.80/ 7.92

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets	$20.55/22.55
Reg. Jute M.F. 40-lb., sheets	19.50/21.50
Printing Manila	12.00/ —

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 800 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

MARKET WOOD PULP

Second Quarter Contract Prices. Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$92.50/ —	‡$78.00/ 95.00			
Sulfate, Bleached	145.00/ —	190.00/ —	$180.00/185.00		$180.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	120.00/132.50*	135.00/170.00	145.00/ —	145.00/ —	
Sulfite, Blchd.	140.00/ —	140.00/160.00	175.00/180.00	175.00/ —	175.00/ —
Sulfite, Unblchd.	132.50/ —	150.00/162.50	155.00/160.00	155.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —	160.00/ —		
Soda, Blchd.	140.00/ —	155.00/ —			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwod Screenings	60.00/ —				
Unblchd Sulfate Sideruns	132.50/ —				
Stand. News. Sideruns	92.50/ —	87.50/ —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards Deld., per ton (10 tons or over) CPR 108

Filled News	$95.00/110.00*
Plain Chip	95.00/105.00*
Blchd. Mla. L-d. Chip	150.00/ —
White Pat. coated .020	175.00/ —
Kr. Liner 42 lb. M sq. ft. $2.47	117.50/ —
Kr. Corr. .009 M sq. ft. $1.59	122.50/ —
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.40/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.90/$24.65
No. 2	22.40/ 22.85
Machine Coated	
No. 1	$19.15/$19.65
No. 2	16.65/ 17.40
Uncoated	
No. 1 Antique (Watermarked)	$19.15/$19.65
Offset	18.15/ 19.15
A Grade E. F.	18.40/ 18.65
A Grade S. C.	18.90/ 19.15
B Grade E. F.	17.40/ 18.15
B Grade S. C.	17.90/ 18.65

‡ Indicates a price change.

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are a partial indication of the price range in each market on the date specified, as gathered from major dealers. ALL PRICES ARE STRICTLY NOMINAL.

	New York May 5	Philadelphia May 16	Boston May 19	Chicago May 5
No. 1 Mixed Paper	nominal	nominal	$7.00/ —	$8.00/ —
No. 1 News	$8.00/ 10.00	8.00/ 10.00	9.00/ 12.00	12.00/ —
Over-issue News	18.00/ 22.00	13.00/ 15.00	15.00/ 18.00	15.00/ —
Mill Wrappers	8.00/ 12.00	7.00/ 9.00	13.00/ 19.00	11.00/ —
Corrugated Containers	10.00/ 11.00	10.00/ 12.00	12.50/ 13.00	14.00/ —
Double Kraft Ld. Corr. Cuts	30.00/ 42.50	30.00/ 42.50	20.00/ 42.50	35.00/ 42.50
100% Kraft Corr. Cuts	45.00/ 50.00	50.00/ 55.00	60.00/ 70.00	55.00/ —
Used Sugar & Flour Bags	35.00/ 45.00	30.00/ 35.00	40.00/ 45.00	30.00/ —
Super Resorted Br. Kraft	35.00/ 45.00	40.00/ 45.00	35.00/ 40.00	30.00/ —
New Br. Kraft Env. Cuts	60.00/ 75.00	70.00/ 75.00	75.00/ 85.00	70.00/ —
New Br. Kraft Cuts	55.00/ 70.00	60.00/ 65.00	45.00/ 70.00	60.00/ —
No. 1 Gdwd. Shvs.	20.00/ 30.00	20.00/ 30.00	28.00/ 35.00	22.00/ —
White Newsblanks	50.00/ 70.00	60.00/ 70.00	55.00/ 75.00	45.00/ —
No. 1 Flyleaf Shvs.	45.00/ 50.00	25.00/ 45.00	40.00/ 65.00	30.00/ —
No. 1 Soft Wht. Shvs.	75.00/ 90.00	70.00/ 85.00	90.00/100.00	75.00/ —
Super Soft Wht. Shvs.	95.00/105.00	85.00/ 95.00	100.00/115.00	85.00/ —
Hd. Wht. Shvs.	97.00/115.00	105.00/115.00	115.00/120.00	90.00/ —
Hd. Wht. Env. Cuts	120.00/135.00	120.00/130.00	130.00/140.00	100.00/ —
New Manila Env. Cuts	60.00/ 70.00	75.00/ 85.00	85.00/ 95.00	40.00/ —
Col. Tab. Cards	35.00/ 40.00	40.00/ 45.00	60.00/ 80.00	35.00/ —
Manila Tab. Cards	65.00/ 70.00	70.00/ 75.00	85.00/100.00	60.00/ —
No. 1 Mixed Ledger	40.00/ —	40.00/ 45.00	35.00/ 45.00	35.00/ —
White Ledger	50.00/ 55.00	55.00/ 60.00	55.00/ 65.00	50.00/ —
No. 1 Book & Mag.†	23.00/ 25.00	20.00/ 25.00	20.00/ 25.00	15.00/ —
No. 1 Rep'd. Hvy. Books‡	35.00/ 40.00	35.00/ 40.00	30.00/ 44.00	27.50/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

RAG MARKET

New Domestic Cotton Cuttings

OPS Ceiling Price, CPR 28 * Delivered Mill Basis

No. 1 White Shirts	$18.50/$21.00*
No. 1 Unblchd. Muslins	18.75/ 21.00*
Blchd. & Unblchd. Underwears	— / 21.00*
Blchd. Canton Flannels	— / 21.00*
No. 1 Light Silesias	15.00/ 16.00*
No. 1 Light Prints	10.00/ 11.50*
No. 1 Blue Overalls	13.50/ 14.50*
Suntan Khakis	— / 11.50*
Fancy Shirts	—/$10.00*
Indigo Blues	8.25/ 10.00*
Mixed Khakis	7.00/ 8.00*
Corduroys	— / 8.00*
Cottonades	7.50/ 8.00*
No. 1 Washables	— / 6.50*

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$4.50/$5.00
Cotton Pants & Overalls	3.50/ 3.75
Thirds and Blues, Repacked	2.75/ 3.00
No. 1 Roofing Rags	1.20/ 1.25
No. 2 Roofing Rags	1.00/ 1.05
No. 3 & 4 Roofing Rags	.90/ 1.00

Bagging

(Prices to Dealers, f.o.b. N. Y.)

PRICES NOMINAL

	Per 100 lbs.
Foreign Gunny	$4.50/$5.25
Domestic Gunny, No. 1	4.75/ 5.25
Heavy Wool Tares	5.50/ 6.00
Foreign Manila Rope	8.00/ 8.50
Domestic Manila Rope	8.00/ 8.75
Jute Strings	7.00/ 8.00
No. 1 Sisal Strings	8.00/ 8.50
Paper Mill Tares	4.00/ 4.75
Foreign Scrap Burlap	4.00/ 4.75
Domestic Scrap Burlap	4.75/ 5.00
Austr. Wool Pouches	7.00/ 7.25
New Burlap Cuttings	7.00/ 7.50

3 new features

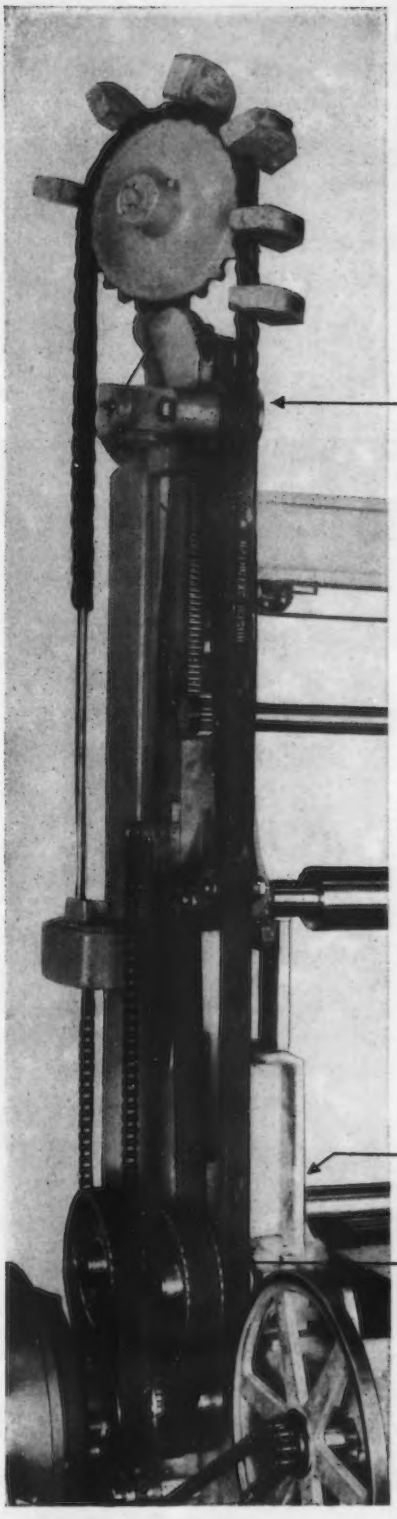
for improved roll quality and reduced maintenance cost

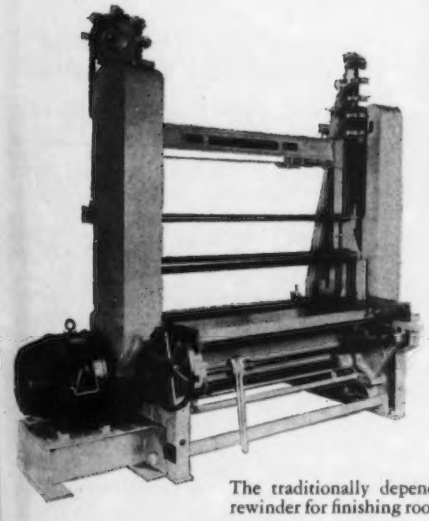
These three new design features of the Camachine Commander virtually eliminate vibration and provide for superior strip control:

1. **Riding Roll Drive:** Impregnated woven flat belts and crowned pulleys drive the riding roll from *both* ends. Adjustable tension apparatus automatically establishes *equal* tension on *both* riding roll belts, and permits variation of riding roll torque to suit the material characteristics.
2. **Rewind Shaft Bearings:** The rewind shafts are mounted in ball thrust bearings which are contained in sliding carriages in the vertical guide bars. The carriages are fitted to eliminate end play of the shafts.
3. **Rewind Drum Drive:** Positive toothed belts, which require no lubrication, are used to transmit driving power to the front and rear rewind drums.

For complete details on the new Camachine Commander write for Bulletin 2000.

CAMERON MACHINE CO. • 61 Poplar Street, Brooklyn 2, N. Y.





The New CAMACHINE COMMANDER TYPE 10

•

Speeds up to 2000 FPM

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Widths from 42" to 82"

•

Rewind dia. up to 40"

The traditionally dependable heavy-duty slitter-rewinder for finishing rooms and converting plants.

LOOK FOR ENGINEERING LEADERSHIP AND YOU'LL WIND UP WITH Camachines®

AA-258

MATERIAL PRICES

Aluminum sulfate:
- coml. bags, wks.....cwt. 1.65
- iron-free, c.l. 3.25

Alcohol, ethyl:
- tax free, dms. o.l.....gal. 1.01 / 1.05½
  deld. East Miss.

Alcohol, methyl:
- Synthetic, Zone 1, dms.
  c.l. fit. alld.....gal. .44

Casein, acid prec.:
- dom. sh. pt. c.l. .....lb. .25 / .37½
- imp. ex. dock ..... lb. .25 / .22

Caustic soda:
- c.l. wks. solid, 76% cwt..... 3.35

flak. & grd. 100-lb. drums... 3.75
liquid 50% tanks.... 2.55
liquid 70% tanks.... 2.65

China clay:
- dom. air-float. c.l. wks. ton 10.00
- water-washed, lump, filler.... 11.00
- coating ..... 17.60 /30.50
- imported, ex whse...short ton 15.20 /28.35

Chlorine:
- single-unit tanks, works..cwt. 2.70
- multi-unit .....cwt. 3.20 / 4.40

Formaldehyde:
- USP, inh. dms. c.l. wks....lb. .0625/ .0675
- l.c.l., E. wks..... .0675/ .0725

Fuel oil:
- Bunker C, No. 6 Cal. hvy.
  tanks, refinery .....bbl. 1.95 / 2.15
- light .....bbl. 2.00 / 2.25

Hydrogen peroxide:
- USP, 35% cbys. E. of Miss. lb. .23½/ .26½

Lime:
- hydrated, bags, wks. .....tons 13.50

Rosin:
- B gum, drms, c.l. Savan..cwt. 7.00 / 9.08*
- K, M, N .....cwt. 7.40 / 9.49*
- FF, wood, do.....cwt. 6.80 / 7.30*

* OPS Ceiling, CPR 52.

Rosin size:
- 70%, gum & pale grds, tank
  cars, south, sh. pt.....cwt. 6.40 / 6.50

Salt cake:
- dom. bulk, c.l. wks.....ton 17.00
- wks. frt. all.....ton 20.00 /22.00

Soda ash:
- light, 58%, bags, wks..... 1.50
- bulk ....cwt. 1.20

Sodium silicate, 40°:
- turbid. c.l. wks.....cwt. 1.30 /
- l.c.l. wks. ..... 1.60 / 1.85

Sodium peroxide:
- dms. c.l. E. of Miss.....lb. .21
- l.c.l. do. .....lb. .21½/ .22

Soybean, protein:
- chem. isol, wks, c.l., bags..lb. .25 / .29
  Cinn. and Chic.

Sulfuric acid:
- 60° Be. cbys. c.l. wks.....cwt. 1.75 / —
- l.c.l. wks. .....cwt. 2.05 / 2.85

Sulfur:
- crude, c.l. mines, contract, long ton 21.00 /22.00
- f.o.b. vessels Gulf ..... 22.50 /23.50

Sulfur dioxide:
- liquid, coml. cyl. wks.....lb. .09
- multi-unit cars .....lb. .0535

Starches:
- pearl corn, bags, c.l. wks...cwt. 6.48 / —
- white dextrines, c.l. wks...cwt. 7.87 / —
- potato, Idaho, c.l. wks....cwt. nominal
- potato, Maine, c.l. wks... cwt. nominal
- tapioca, conv. dextrines ..cwt. 8.50 / 9.00

Talc:
- domestic, 50-lb. sacks, c.l.
  wks. .....ton 25.00 /30.00

Titanium dioxide:
- anastase, c.l. deld., bags...lb. .21 / .21½
- l.c.l. deld. .....lb. .22 / .22½
- rutile, c.l. deld. .....lb. .23 / .23½
- l.c.l. deld. .....lb. .24 / .24½

For hard sizing without machine slow-down...

You can gain wide degrees of waterproofing and sizing plus high dry and wet strength with BITUSIZE B. Bitusize reduces foaming, increases machine speed, pushes production up.

BITUSIZE B is a ready-flowing emulsified asphalt sizing agent you can pump, store and handle easily without special equipment.

BITUSIZE A ADHESIVE EXTENDER—Higher solids, more uniform gluelines at less cost, higher waterproofing value.

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St. Louis 17, Mo. Mobile, Ala. Baton Rouge 2, La. Tucson, Ariz. Inglewood, Calif.
Oakland 1, Calif. Portland 7, Ore. Seattle, Wash. Washington 6, D. C. San Juan 23, P. R.

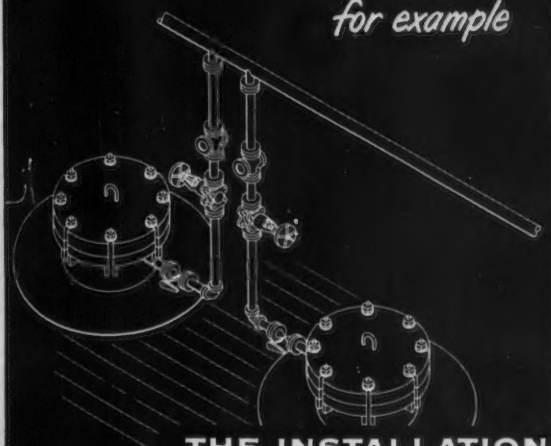
WHAT'S NEW IN PUBLICATIONS

Planning and Developing the Company Organization Structure. Book, 250-page research report by Ernest Dale, A.M.A., research associate and assistant professor of industrial relations at the Graduate School of Business, Columbia University, price $4.50. An analysis of data obtained by the author in visits to 40 top companies considered to have harmonious organization structures, and in spot-checks of 150 others.

Main body of the report is divided into two parts. Part I deals with the dynamics of organization, and is an analysis of the major organizational problems as they arise at various stages of a company's growth. Part II deals with the mechanics of organization, and offers detailed guidance for analyzing the existing structure and modifying or changing it—in the light of best established practices—to conform to the needs of the individual company. American Management Assn., 330 West 42nd St., New York, N. Y. Price to members, $3.

Do Your Valves Resist Corrosion Like This?

... on Digester Gases, for example



THE INSTALLATION

VALVE SERVICE RATINGS

CORROSION-RESISTANCE:	Best results ever had
FEATURES:	Plug seating-good for throttling and wide open service
SUITABILITY:	Adopted as standard
MAINTENANCE COST:	No upkeep needed
SERVICE LIFE:	Hardly any wear after 2 years
OPERATING RESULTS:	Better control of digester gases
AVAILABILITY:	Regular Crane Catalog item

Crane Alloy Plug Gate Valves on sulphate digester gas-off service in a large Southern paper mill.

THE HISTORY

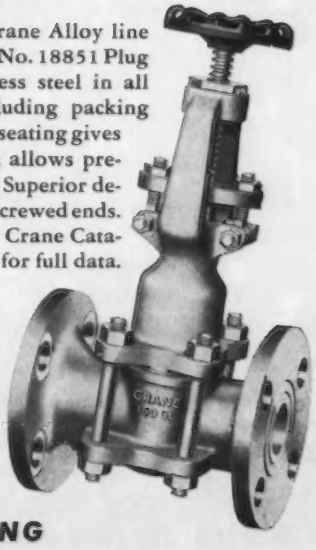
Valves in this installation are used to relieve, under throttled flow, the highly corrosive sulphate gases from digesters. Various valves tried gave constant trouble with corrosion, leakage, and difficult operation. Replacements were excessive.

Then Crane 18-8 Mo Alloy Plug Gate Valves were installed on a test basis. After 1 year's service, and again after 2, careful inspection showed hardly a sign of wear or corrosive effects. Meanwhile, the valves operated smoothly; required no maintenance.

So well have Crane valves out-performed and outlasted all others tried, they have been made standard equipment on all digesters.

THE VALVE

One of the leaders in the Crane Alloy line for severe corrosive service—No. 18851 Plug Gate—with 18-8 Mo stainless steel in all parts exposed to flow, including packing gland. Circular, tapered plug seating gives minimum resistance to flow; allows precise control when throttling. Superior design throughout. Flanged or screwed ends. Also in All-Monel. See your Crane Catalog or Crane Representative for full data.



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More Crane Valves Are Used Than Any Other Make!

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Returnable and Non-Returnable extra strong mill core for regular and special needs.

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NEW YORK OFFICE—500 5th AVE.

The Paper Year Book, 1952. Tenth annual edition of the "encyclopedia of paper," edited by Frank Dysarz. 644 pp., price $10. The revised volume presents complete and detailed information on more than 1,000 papers, paper products and related items made up in nine major sections, thumb-indexed for easy reference. Included are over 700 photographs and over 100 charts and tables. Davidson Publishing Co., 405 East Superior St., Duluth 2, Minn.

Paper Making and Converting Machinery. Twelve-page bulletin 6 B-C. Visualizes the breadth and all-inclusiveness of the line of stock preparatory, paper forming, and paper converting machinery produced by the Black-Clawson Co., Shartle Bros. Machine Co., Dilts Machines Works, and B-C International. Each piece of equipment is illustrated and briefly described. Advertising Dept., The Shartle Bros. Machine Co., Middletown, Ohio. Canadian respondents should address Alexander Fleck, Ottawa, Ont. Foreign requests may be addressed to B-C International Ltd., Greener House, 66/68 Haymarket, London, S.W.1, England.

Peerless Turbine Vane Pumps, Types TVE and TVB for Pumping Hot and Cold, Clear and Vaporous Liquids. Bulletin No. B-2205. Includes head-capacity selection charts, sectional views, and elevation drawings and dimensions. Peerless Pump Division, Food Machinery and Chemical Corp., 301 West Avenue 26, Los Angeles 31, Calif.

Treatment of Raw and Waste Waters with PQ Soluble Silicates. Bulletin 52-19. Sales copy and technical data on N-Sol Processes. Illustrated with flow diagrams. Philadelphia Quartz Co., Public Ledger Bldg., Philadelphia 6, Pa.

New Technical Data on Improved Brush-On Furan Lining for Handling Corrosives. Bulletin 500 and Data Sheet C-46. Carboline Co., 7603 Forsyth Blvd., St. Louis 5, Mo.

Bristol Electronic Dynamaster Potentiometer and Bridge Instruments. Bulletin No. 1245, 36 pp. Detailed sales copy. Bristol Co., P. O. Box 1790, Waterbury, Conn.

Type AB Circuit Breakers. Booklet No. B-5407. Includes photographs showing the actual De-ion ® arc quenching action of all AB breakers: Confine the arc, divide it, extinguish it. A "quick guide" to AB circuit breakers gives the types, their ratings, and standard and special features. Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa.

Multiwall Shipping Sacks

(Continued from page 40)

Within ninety days, most of our dealers were using the 50 pound paper bags to the extent of 75 percent of our total mill output and within six months' time over 95 percent of our output was in this new 50 pound multiwall paper container. In less than a year's time, we had completely discarded and dsscontinued the use of any other package as being outmoded, obsolete, and undesirable.

In the final analysis, whether we are in sales or production, the thing in which we all have to be interested is the way the idea rings through the cash register. When a firm succeeds phenomenally, it is sometimes hard to put your finger on any one thing that you can clearly say is responsible for that success. However, our firm has increased its tonnage 300 percent in the past two years since we have adopted the use of this 50 pound multiwall paper bag and we certainly give it credit in our merchandising program for having done its share in helping us achieve this unusual growth.

Transportation

Laurence W. North
Member, Official Classification Committee, Eastern Railroads

A year or so ago the Freight Claim Division of the Assn. of American Railroads informed the Classification Committees that claims paid on products such as sugar, flour, rice, fertilizer and the like were assuming large proportions and that these commodities were largely shipped in paper bags. It was suggested that consideration be given to the establishment of some performance standards that would improve the quality of paper shipping bags.

A conference was held, attended by representatives of the paper bag industry, the Freight Claim Division, the Classification Committees and representatives of several large shippers of commodities in paper bags.

It was brought out that there was a need for specific claim figures on commodities in paper bags in order to intelligently deal with damage to individual commodities and groups of commodities. The Freight Claim Division is undertaking to obtain this data.

The most important result of the conference was the appointment of a joint Classification and Paper Shipping Sack Industry Committee, under the Chair-

manship of J. A. Quinlan, vice-president of the St. Regis Paper Co., whose function was the study and probable revision of railroad regulations.

At the first meeting of this group, the Mullen test requirements for paper bags was considered at length. The general opinion was that a Mullen test for paper bags was not necessarily a proper criterion for the quality of a bag; that over the years advancement in the art of paper making developed qualities that while producing a better bag actually tended to lower the Mullen test.

The outcome of this discussion was that, effective January 16 of this year, the Mullen test requirements were eliminated on paper shipping bags made of plain paper of 40, 50, 60 and 70 pound basis weights and other controls were substituted in lieu thereof, i.e. tearing strength, tensile and minimum stretch.

Present Rule 40 specifications are materially below those which bag manufacturers themselves consider adequate. For many commodities bag manufacturers would not think of constructing bags to merely comply with those minimum specifications. Many large shippers of commodities in paper bags set their standards beyond those you specified in the Classification as minimum.

The Classification Committees are convinced that the present specifications for paper shipping bags should more nearly reflect the standards followed in the trade. Future meetings of the Joint Classification and Paper Shipping Sack Industry Committee will study this question, as well as other related questions, including the practicability of establishing some performance standards to be included in Rule 40. My own view is that the joint efforts of this Committee will ulimately result in the establishment of specifications mutually beneficial to shippers, bag manufacturers and the railroads.

SUPPLIERS

RAYMOND T. DEPAN recently joined the technical and sales engineering staff of The Sandy Hill Iron & Brass Works, Hudson Falls, N. Y. Mr. DePan brings to Sandy Hill a broad technical and practical knowledge in the pulp and paper field gained

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ONLY NASH VACUUM PUMPS HAVE ALL THESE FEATURES
One Moving Element. Non-pulsating Vacuum. No Internal Parts In Wearing Contact. No Internal Lubrication. Handles Liquid With Air. No Expert Attendance. Constant Efficiency. Low Maintenance Cost.
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With the experience of half a century of fine instrument making, we make fifty-six paper testing instruments, modifications and major accessories for standard testing instruments—many of them adopted by ASTM—TAPPI—JAN—AAR—GIA

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Pulp Classifier—4 screen
Currier Size Tester
Formation Tester
Vapometers
IPC Electric Hygrometer for MVP
Penescope Penetration Testers
Laboratory Corrugator
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FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

over a number of years of varied experience.

In 1940, Mr. DePan became associated with The Flintkote Co. at East Rutherford, N. J., in its research and development program. During this period he also found time for night school courses at Brooklyn Polytechnic Institute and Stevens Institute of Technology studying chemical engineering. He later became manager of the Flintkote roofing felt mill at Mt. Carmel, Ill. In 1947, Mr. DePan joined the Downingtown Manufacturing Co. at Downingtown, Pa., where he specialized in development and research on wallboard and stock preparation equipment.

D. M. Shapleigh

JACKSON & CHURCH CO., Saginaw, Mich., has appointed David M. Shapleigh as sales engineer in its Zenith division. Associated with technical sales and service in the paper and pulp and textile industries for 20 years, Mr. Shapleigh was former manager of Superba Mills, Inc., Hawkinsville, Ga.

AMERICAN CYANAMID CO. has named Dr. Nolan B. Sommer supervisor of the New Product Development Department. He replaces Dr. James R. Dudley who recently joined the Carwin Co., North Haven, Conn.

MINNEAPOLIS-HONEYWELL REGULATOR CO. has named John A. Robinson sales manager of the Eastern and Mid-Atlantic regions for the Industrial Division. At the same time, Joseph J. Matulis was appointed industrial manager for the Midwest region to succeed Mr. Robinson. C. G. Behnke was promoted to industrial manager of the Chicago branch office.

For Information on Plant Sites write:
SEABOARD AIR LINE R. R.
NORFOLK 10, VA

Mr. Robinson succeeds O. B. Wilson, recently named field sales manager.

H. A. Des Marais

PENNSYLVANIA SALT MANUFACTURING CO. of Washington has appointed Hubert A. DesMarais general sales manager.

Mr. DesMarais, formerly Pacific Coast Sales Manager for the General Dyestuff Corp. with headquarters in San Francisco, will locate Pennsalt of Washington's central office in Tacoma.

Well known in chemical and industrial fields in the West, Mr. DesMarais came to Portland, Ore. in 1932 to open and manage the first General Dyestuff Corp. office there. In 1937 he was appointed Pacific Coast Manager. Previously he had been technical and sales representative on dyestuffs and chemicals for the paper board and pulp mills in New England. Before joining General Dyestuffs he was in the production department of the Chemical Paper Manufacturing Co. of Holyoke, Mass.

H. L. Cox

CORN PRODUCTS REFINING CO. has elected Dr. Henry L. Cox as vice-president in charge of the Chemical Division, at Argo, Ill.

AMERICAN CYANAMID CO. has announced that Dr. J. C. Pullman has joined the New Product Development Department. Prior to this change Dr. Pullman was at the company's Stamford (Conn.) Research Laboratories, where he was principally engaged in the development of chemicals for use in the paper converting industry. Dr. Pullman joined Cyanamid in 1943.

LOCKPORT FELT CO. reports that effective April 15, John A. Manley became associated with them as a field representative covering the States of Delaware, Maryland, Pennsylvania and New Jersey which territory was formerly covered by W. W. Campbell, Jr. who was previously appointed assistant sales manager. Mr. Campbell will continue to cover mills in Connecticut. Mr. Manley is well-known in the Paper Trade having represented E. I. duPont de Nemours since 1946.

HUDSON SHARP MACHINE CO. has named C. A. Wetli, vice-president, as general sales manager. Associated with the company for the past 23 years, Mr. Wetli is currently located in New York, where he has been in charge of the eastern territory.

Obituaries

Daniel R. Sargent, 63, president of Starbuck Manufacturers, of Leeds, Mass., and retired executive of the Ben-Mont Paper Co., Inc., of Bennington, Vt., died on May 15.

A native of Bristol, Vt., Mr. Sargent for twenty-eight years was connected with Eaton, Crane and Pike, Pittsfield, Mass. He came to Bennington in 1915, and following his retirement from the Ben-Mont firm served as technical consultant to the Western Printing and Lithographing Co., Racine, Wis.

Harry W. Gordon, who was one of the sales managers of the United States Envelope Co., died April 22 in Springfield Hospital. He had been connected with the envelope company for the past 38 years.

James P. Dudley, 58, sales manager in the New York office of the Chemical Paper Manufacturing Company of Holyoke, died April 27.

Frank C. Bowler, 77, retired chief engineer for the Great Northern Paper Co., died April 27.

Bernard J. Graham 77, former manager of the T. P. Chapman Paper Co., died May 4 in St. Louis, Mo.

AMERICAN PAPER AND PULP ASSOCIATION PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1952	Apr. 12 91.7	Apr. 19 90.2	Apr. 26 92.8	May 3 88.2r	May 10 91.2
1951	Apr. 14 103.1	Apr. 21 104.3	Apr. 28 100.9	May 5 102.3	May 12 102.7

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1951	99.3	101.3	101.9	102.8	102.2	100.1	88.6	97.7	94.3	100.3	98.0	90.0	98.0
1952	97.6‡	97.9‡	96.1‡	91.4‡									

COMPARATIVE YEARLY SUMMARIES

	1945	1946	1947	1948	1949	1950	1951	1952
Year to Date	88.5	100.1	105.3	100.9	89.9	95.4	101.7	95.3
Year Average	85.4	96.9	101.7	92.1	83.7	95.8	98.0	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS†

1952	Apr. 12 81	Apr. 19 81	Apr. 26 83	May 3 82	May 10 81
1951	Apr. 14 102	Apr. 21 107	Apr. 28 105	May 5 107	May 12 104

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1951	102	105	104	105	104	103	84	94	86	87	82	75	94
1952	81	86	85	82									

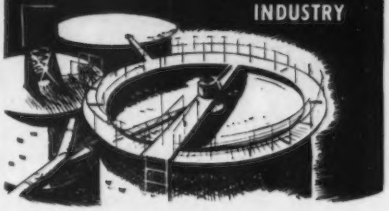
All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

CORROSION

AFFECTS EVERY PLANT IN THE PAPER INDUSTRY



MILLIONS OF DOLLARS ARE LOST ANNUALLY

And your plant is *not* immune. Corrosion may attack in many ways . . .

1. **Your Hard-to-Get Equipment** . . . may be ruined by constant attack of acids, alkalies, fumes, chemicals, moisture, gases and weathering.

2. **Your Valuable Products** . . . are subject to contamination and loss whenever they are in contact with corroded surfaces.

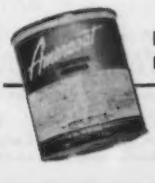
3. **Expensive Shutdowns** . . . and loss of production with costly man-hours for repairs may be incurred unnecessarily.

4. **Your Profits** Ruined equipment, contaminated products, the loss of production and repair expense caused by shutdowns mean only one thing . . . reduction in *your* profits!

RIGHT NOW . . . you should investigate the economies of using Amercoat; a *line* of coatings built to protect against *specific* industrial corrosion hazards.

Our field engineers are available . . . without obligation . . . to check your plant for corrosion problems . . . and to give you *specific* recommendations.

AMERCOAT CORPORATION
A division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.



FOLLOW THE LINE OF *most* RESISTANCE

PROTECT WITH *Amercoat*

CLEARING HOUSE

HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—superintendent Fourdrinier machine mill on fine rag content and all fine papers; supt. multiwall sack plant; purchasing agent preferably with waxed paper converting plant experience; asst. supt. roofing plant; asst. supt. asphalt roofing; asst. supt. Fourdrinier machine mill and lightweight papers; designer for paper machinery, salary range $100-$150 week.

Mechanical engineers; maintenance foreman; master mechanics; plant engineers; chemists, chemical engineers and laboratory men (several openings); working foreman filing supply business paper converting plant; finishing foreman; color matcher for coated paper mill; printing foreman; Cylinder and Fourdrinier machine foreman; bookkeeper and controller; salesmen and asst. sales mgr. for fine rag content papers; beater engineer, fine papers; machine tenders and back tenders; chemical engineer with technical education for demonstrating and selling.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING AND IN SUPPLYING PULP AND PAPER MILL EXECUTIVES M-23

MACHINE TENDER WANTED

Need energetic, ambitious man for six cylinder board machine making high grade folding boxboard.

If you are available write or phone giving details of your experience, education and background to—

ROBERTSON PAPER BOX CO., Inc.
MONTVILLE, CONN.

M-30

WANTED

Sales and Service representative for old, established manufacturer of Pulp & Paper Equipment. Territory Pacific Northwest. Prefer graduate mechanical or chemical engineer. Age 30-40. Reply to Paper Trade Journal, Box 52-203. M-23

Paper Mill in Metropolitan New York area has opening for Paper Mill Superintendent. Must be Graduate Mechanical Engineer with at least ten years' experience in modern paper mill. Salary $12,000. Opportunity for advancement. Ideal conditions. In first letter submit complete resume of personal background, education, age, and experience. Address Box 52-201 care Paper Trade Journal. M-23

HELP WANTED

WORKING SUPERINTENDENT

Small Southern folding board mill desires man familiar with all grades, quality and cost conscious, and able to handle help. Will consider night supt. or tour boss who has ability and experience but has lacked opportunity. Good salary plus bonus. Address Box 52-202 care Paper Trade Journal. J-6

NIGHT SUPERINTENDENT

For one machine folding board mill producing 50 tons daily. 12 hour shift. $7500 yearly plus bonus. Opportunity for rapid advancement. Box 52-191 care Paper Trade Journal. M-30

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 52-76 care Paper Trade Journal. TF

WANTED—The services of a man who thoroughly understands the use and application of potato dextrine for the Paper, Textile and Pure Food Industries. Give full particulars and experience. All replies confidential. Address Box 52-179 care Paper Trade Journal. M-23

WANTED—Assistant Millwright or assistant master mechanic, willing to work, in one-machine Board Mill. Company steadily growing. Great chance for advancement for right man. State experience in first letter. Address Box 52-165 care Paper Trade Journal. TF

Wanted—Engineers and Draughtsmen by New York Consulting Engineer Designing Pulp and Paper Mills. Give Experience and Salary. Address Box 52-193 care Paper Trade Journal. TF

Assistant Pulp Mill Superintendent — Must have technical education and practical experience. State age, education, experience and salary in first letter. Mill located in Southeastern State. Address Box 52-192 care Paper Trade Journal. M-23

MANUFACTURING PLANT in the Metropolitan New York Area, has opening for power plant engineer. Must be graduate mechanical engineer with at least five years boiler room and power room experience. Salary open. In first letter, give complete resume of personal background, education, age and experience. Address Box 52-217 care Paper Trade Journal. M-23

CHEMICAL ENGINEER — Paper School Graduate with experience in paper and pulp or wallboard industry. Good position for capable and efficient young man. Frequent travelling in U.S.A. and Canada necessary to give technical assistance. State qualifications and salary expected. Replies treated confidentially. Address: Timber, Pulp & Paper Export, Ltd., 604 rue Street Jean, Quebec City. M-30

HELP WANTED

WANTED: QUALITY CONTROL SUPERVISOR. Opportunity for security and advancement with well established and growing organization for competent person experienced in paper converting and printing. Laboratory work and ink formulating experience helpful though chief demand is for application on the production line. Prefer graduate chemist. Write Box 52-200 care Paper Trade Journal, giving information concerning work experience, education and relevant personal data. Replies confidential. J-6

FINE PAPER MANUFACTURER with national distribution, wishes to expand their sales force. State experience, references and compensation wanted. Address Box 52-211 care Paper Trade Journal. M-30

SITUATIONS WANTED

EXECUTIVE—Presently employed as administrative and sales manager, toweling and tissue mill. Experienced in all phases of mill operation. Knowledge of coarse paper. Responsible position desired. Address Box 52-188, care Paper Trade Journal. M-23

MILL EXECUTIVE: Experienced in production of groundwood, sulphite and kraft pulps and papers and small and wide fast paper machines. Also, some medium grade fourdrinier and cylinder boards and bag mill operation. Desires change of location as manager or equivalent position. Technical education. Available on reasonably short notice. Address Box 52-195 care Paper Trade Journal. M-30

Graduate Industrial Chemist receiving another degree in Chemical Engineering in Pulp and Paper, seeks position in research, development or production and quality control in sulfate pulping. Two years mill experience. Draft exempt. Address Box 52-204 care Paper Trade Journal. M-23

PLANT SUPERINTENDENT — Desires change. Long years experience in the manufacture of Multi Wall Paper Bags. Will consider any reasonable offer and travel anywhere. Address Box 52-214 care Paper Trade Journal. J-6

ASSISTANT SUPERINTENDENT wishes to connect with some reliable waxed paper concern. Many years experience waxing and laminating papers, such as foil, acetate, cellophane, glassine, etc. for all purposes. Have no difficulty in handling help for the best results. Best of references. Address Box 52-213 care Paper Trade Journal. M-30

FOR SALE

FOR SALE

42" Moore & White Sheeter.
100" Dillon Sheeter.
76" Cameron 8-10 Slitter.
52" Cameron 8-5 Slitter.
72" Two-Drum Upright News Reel.
THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.) TF

RATES FOR CLEARING HOUSE ADVERTISING

HELP WANTED—75c a line. Minimum charge $3.75.

SITUATIONS WANTED—75c a line. Minimum charge $3.75. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—75c a line. Minimum charge $3.75

WANTED—75c a line. Minimum charge $3.75.

OPPORTUNITIES—75c a line. Minimum charge $3.75.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance.

If box number is used—70 cents additional

Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

MACHINERY WANTED FOR OUTRIGHT PURCHASE
From a Single Item to A Complete Mill.

AGITATOR DRIVE
2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1.

AIR HOIST
1—5-ton Ingersoll-Rand with Trolley.

BALERS
2—New Economy Balers—16 x 30 x 39½.
1—Economy Baler—20¼ x 24 x 49.
1—Economy Baler—18½ x 34 x 42¼.
1—Logeman Baler—27¼ x 47½ x 62 with GE Motor and Controls.
1—Logeman Baler 42 x 24 x 40 with GE motor and controls.

BEATER FILLING
1—New 54" Beater Filling with ½" bars, woods and bed plate.

BEATERS
1—Dilts 750 lb. Iron Tub. Roll 44" face x 80" diameter.
1—Downingtown 1000 lb. Iron Tub. New roll 48" face x 48" diameter.

BLOWERS
1—Sturtevant Monogram Fan, Ball bearing Size 7.
1—Sturtevant Multivane Fan, Ball bearing Size 6.

CALENDER ROLLS
16 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—Farrel Birmingham. 5 roll, 108" Calender with doctors, 2 rolls bored-for steam.
1—Black Clawson 90" 7 roll with 3 spare rolls.
1—Pusey & Jones 84" 4 roll, with doctors and drive
1—Holyoke 3 roll 45". Rolls bored for steam.
1—88" 5-roll.

COATER
1—Waldron 42" 2 roll Coater. Will apply waxes, gums, lacquers, etc., on cellophane, paper or plastics. New 1946. Used 3 years.

"CYCLAFINER"
1—Shartle "Cyclafiner" with coupling.

CYLINDER MOLDS
1—134" face x 36" diameter, with stainless steel shafts

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRIVES
1—#3 Reeves anti friction bearing.
1—#6 Reeves—anti friction bearing—with motor for adjustment.
1—Beloit enclosed drive right angle ration 3 to 1, with couplings and pulleys.
1—Falk enclosed drive Type 911-F, ratio 5 to 1.
1—Link-Belt 40 h.p. Ratio 2.2-1, 500 r.p.m.—227 r.p.m.
1—Cleveland enclosed drive right angle 7 h.p., 24½ to 1 ratio, 1750 r.p.m.

DRYERS
4—124" face x 48" diameter.
1—77" face x 48" diameter—with gear.
1—192" face x 48" diameter, with bearings
5—110" face x 42" diameter with bearings and gears.
1—109" face x 42" diameter Creping Dryer.
4—42" face x 36" diameter, with frames, gears and bearings.
18—48" face x 48" diameter, with gears, bearings and steam joints.
19—122" face x 42" diameter.
3—110" face x 48" diameter.
2—103" face x 48" diameter.
2—116" face x 36" diameter, with gears and bearings.
1—126" face x 48" diameter
14—160" face x 48" diameter.
2—160" face x 36" diameter.
29— 62" face x 36" diameter.
1—130" face x 48" diameter.
34—143" face x 48" diameter with frames, gears, bearings, steam joints, etc.
7—137" face x 48" diameter with frames, gears, bearings, steam joints, etc.
13—132" face x 48" diameter with frames, gears, bearings, steam joints, etc.

EXTRACTOR ROLLS
1—Downingtown Extractor Roll 128" face x 24" diameter. Anti friction bearings.

FILTER PRESS
1—New Sperry 12" Filter Press—20 plate.

FILTERS
1—Oliver Vacuum Filter, 8' face x 5' 6" diameter. Iron end vat.

FLAT SCREENS
3—6 plate Sandy Hill Roller Shoe with scrapers.
1—Sandy Hill 12 plate roller shoe.
5—Bagley & Sewall 8 plate, with scrapers and plates.
1—6 plate tailing screens with scrapers.
1—4 plate tailing screen with scraper.

FOURDRINIER SECTION
1—Pusey & Jones 156" x 80' wire—Ball bearing Complete from Voith Inlet to 22" diameter suction couch.

FOURDRINIER WIRES
3—New 76"x47 ft. 10"—60 mesh.

"HYDRAPULPER"
1—Shartle-Dilts 10' batch with hydraulic dump valve—cast iron tub.

HYDRAULIC PRESS
1—Thorpe 200 ton. Steam platens. 40"x40" with pump.

JORDANS
1—#6 Miami, for motor drive.
3—Jones Majestics with base and couplings—
2—#3 Appleton with base and counting.
1— Jones Majestic Stainless Steel Filling
3—E. D. Jones Pony. 3/16" stainless steel fillings—banded plugs. Spare new fillings.
1—Smith & Winchester Standard with granite fillings.

KNIFE GRINDER
1—100" Hanchett Knife Grinder with motor.

MOTORS
2—General Electric 2500 h.p. slip ring motors. 6600 volts—3 phase—60-cycle—257 r.p.m., with complete controls.
2—Westinghouse 200 h.p. 2200 volts—3 ph.—60 cycle—600 r.p.m. Synchronous speed with controls and grids.
1—Westinghouse 150 h.p. 2200 volts—3 ph.—60 cycle—580 r.p.m. with controls and grids.
1—Allis Chalmers 30 h.p. 440 v. 660 r.p.m.
1—General Electric—25 h.p.—230 volts—3 ph.—60 cycle—300/900 r.p.m.
25 other 440 v. motors from 2 h.p. to 15 h.p.

PULP BALING PRESS
2—500 Ton Pulp Baling Presses with pumping unit and motor.

PULP EQUIPMENT
2—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—D. J. Murray 10' x 25' Barking Drum.

PULPERS
2—#2 Lannoye.

PUMPS
1—New Worthington—bronze filled. 10,000 g.p.m., 35' head, with extended base for motor — spare new impeller.
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year.

REELS
1—2 bowl 106"—18" diameter iron bowls.
1—2 bowl 94"—16" diameter bowls.

REFINER
1—Shartle Hydrafiner with coupling and new spare stainless steel filling.

ROLL GRINDER
1—Lobdell 14' Roll Grinder handles 30" maximum diameter rolls.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
1—#2 Bird—Copper Vat.

SCREW PRESSES
1—Valley Voith Screw Press Size 2.
1—Valley Voith Screw Press—enclosed drive.

SHEETERS
1—Hamblet 124" Duplex Sheeter with maxim layboy—8 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter. Maxson layboy overlapping delivery. 8 roll backstand, motor and starter.

SHREDDERS
1—American 37" Hamermill, anti-friction bearings
1—Jeffray 26½" Knives—7 knife rotor—6 knife bed plate. Ball bearing.

SLITTERS AND WINDERS
1—Beloit 125" Paper Machine Slitter and Rewinder—42" rewind.
1—Hudson Sharp 25W—66" Wax roll slitter and rewinder. New 1947.
2—Cameron 42" Model 6—24" rewind.
1—Cameron 44" model 9-5.

SMOOTHING PRESSES
2—New Farrel Birmingham 108" face x 24" diameter. Rubber covered, with ball bearings and enclosed drives.

STEAM TURBINES
1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 35 p.s.i. Complete with gear reducer.
1—De Laval Variable speed—375 h.p. at 135 gauge and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
2—Beloit 8x10 Triplex.
1—Triplex—8x10. Used less than 1 year.
2—Shartle Agi-flo, 13" suction, 14" and 4" discharge. Anti friction bearings.
1—Beloit 10 x 26 Triplex.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.

SUCTION COUCH ROLLS
1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings, 12" suction boxes.

SUCTION PRESS ROLLS
1—Sandusky 97" drilled face x 14" diameter.
1—Millspaugh 50" face x 14" diameter.
1—Sandusky 92" drilled face x 22" diameter, with pinion gear.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141 automatic 81" Perforator, slitter and Winder —with three motors—ball bearing.

VACUUM PUMPS
2—Nash ½ H-5 Vacuum Pumps
1—Nash L-4.
1—Nash L-6 with separator tank.
2—Nash K-5.
1—Nash K-4.

VORTRAPS
21—4" Stainless Steel with rubber lined heads. 3" Hills McCanna Valves and stainless steel headers.

WET MACHINES
1—84" with Hoffman Couch. New vat. New wood press roll.

WRAPPING MACHINE
1—Morrow Stevens type IC. Package thickness ¾" to 5". Used 30 days.

YANKEE DRYERS
1—New Sandy Hill 100" face x 72" diameter, with bearings and doctor.
1—Voith 100" face x 10' diameter—with bearings.

WHY LIST YOUR EQUIPMENT?—WE WILL BUY IT!

FOR SALE

CAMERON SLITTERS
1—62" Type 26-3A Duplex
1—52" Type 8-5
1—42" and 1—62" Type 6
1—32" and 1—42" Type 40-2A
1—?" and 1—62" Type 40-1-AF
1—52", 1—62" and 1—72" 10-5.
1—72" Type 8-10
1—112" Type 18

OTHER SLITTERS
1—62" Beck Duplex Rewind Razor Blade Slitter & Rewinder. Suitable for paper and plastics
1—62" Type AA Langston Shear Cut
1—30" and 1—62" Langston Type A Shear Cut
1—42" Kidder Merchant Model Shear Cut Pneumatic Control
1—40" Kidder, Model SH, Shear-cut. Rewinds to 40" diameter.
1—40" Type C Fales, shear-cut.
1—94" Beloit, heavy duty Paper Machine Winder
1—112" Waldron Double Drum S. & R.

POWER PAPER CUTTERS
10—Seybold, 56" 10Z; 38", 44" and 74" 20th Century; 44", 48" and 55" Holyoke; 50" and 74" Dayton.
4—Oswegos, 38", 44", 50" and 74".
6—Sheridans, 32" Perfection, 34", 36", 40", 50" and 55".
2—Dexter, 38" and 50".
5—Acme, 32", 34", 36", 46" and 50".
1—National 44".
1—30½" Diamond.
2—Smith & Winchester Undercut, 63" and 79".

MISCELLANEOUS MACHINES
1—40" Flocking Machine.
1—20" Champlain 5 color unit Rotogravure Press equipped with one Aniline-Anilox unit.
1—30" 3-color Heinrich Aniline Tailprinter, with rewind.
1—12" and 1—24" Schultz Automatic Shelf and Wax roll machine. Rewind 25' to 250'.
1—72" Hudson-Sharp 25W Winder for Waxed and Household paper rolls.
1—45" Beck Rotary Sheet Cutter with Jogger Table and Electric Eye.
1—34" Waldron Gummed Paper Breaker.
1—3-color Kidder 36" x 60" Roll to Roll Oil Ink Press.
1—Kidder 36"x48" 2-color roll to sheet, Rotary Wrapping Paper Press
1—Sheridan Die Press, Model 8B Plates 33" x 46". Automatic Feeder.
1—52" Waldron Anti-friction Embossing Machine with Slitting attachment.
1—82" Potdevin Type Waxing Machine.
1—48" Mayer Equalizer Waxing Machine. Type 40-EV. Two Coating Heads and three 16" diameter Cooling Drums.
1—45" and 1—48" Hamblet Rotary Sheeter.
1—94" Moore & White Duplex Rotary Sheet Cutter.
1—116" Model 29 Hamblet Duplex Rotary Sheet Cutter, slitting attachment, Erie automatic layboy and twelve roll backstands.
1—74" Hamblet Single Rotary Sheeter with Layboy, Slitting attachment and Backstands.
2—Asphalt Laminating machines, one 70" and one 88".
1—Bird Pulp Screen. Type A-1-6-3/16. Plates cut .014".
1—24" Weiner Refiner.
1—84" Carthage wood chipper, 10 knives, belt drive.
2—36" x 76" Wet Machines.
2—#2 Lamaye Pulpers.
2—2000 lb. Niagara Iron Tub Beaters.
1—108" Sandy Hill Shear Cut Double Drum
1—84" 9-roll Holyoke Stack of Super Calendars.
1—80" 9-roll Norwood Stack of Super Calendars.
Winder, rewinds 40" diameter rolls.
1—61" Ten roll Holyoke Stack of Super Calenders
1—Noble & Wood High Speed Jordan, direct connected to Shock Proof A.C. 3P. 60c. 220-440 volt Motor
2—Waterbury Drive.
16" diameter Cooling Drums.
2—27" x 54" Carthage 3-pocket Grinders. Complete with 1000 HP AC Motors.
2—Sandy Hill Packer Type Flat Screens.

We Want YOUR Used Equipment—
Write Us NOW

GIBBS-BROWER CO. INC.
Please address reply to Room 902
21 East 40th Street, New York 16, N.Y.
Telephone Lexington 2-5759
M-23

FOR SALE

FOR SALE

6 ft. x 4 ft. Oliver filter
52" Cameron slitter
84" Moore & White cutter and layboy
25" x 103" suction press roll
8 roll 84" Norwood supercalender
48" Seybold Cutter
Two 2A Bird screens
Two 40" drum Jones rotary screens, new 1940
No. 7 Nash hytor pump
36 P & J Dryers 48 x 160"
Two 14 plate Harmon screens
No. 19, 182" Cameron slitter
24" Sutherland refiner
190" Pope reel, 42" drum
84" four knife Carthage chipper
Four Thune presses
72" Noble & Wood wet machine

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge 46, Mass.
M-30

FOR SALE BY A MANUFACTURER

Rotary Vacuum Filter 54" wide 12' 8" in circumference with 3 H.P. Motor, Goodrich Planetary Speed Selector, Nash Hytor Rotary Vacuum Pump, Vacuum Tank and Winfield Smith Reducer.
Sprout and Walden 24" Attrition Mill—Motor.
500 gallon Jacketted Steel Kettle.
4—Steel Tanks 9' 6" O.D. by 12' deep.
3—Patterson Agitator Units 10 H.P. Motor.
Eastman Kodak Beater with 30 H.P. G.E. Motor.
5—Ingersoll Rand Motor Driven Pump 150 G.P.M.
York Air Conditioning Unit.
Orr & Sembower 50 H.P. Powermaster & Oil Burner.
Williams #2 Shredder — Hammer Mill with motor.

Address Box 52-218
c/o Paper Trade Journal.
M-30

FOR SALE

1—88" Fourdrinier Machine complete Voith inlet & headbox. Fourdrinier designed for 60' wire. 5 Suction boxes, Sandusky suction roll, 4½" dia. table rolls, new anti-friction bearings, two presses, 19 dryers, 7-roll calender stack, two-spool reel, Warren winder, seven enclosed drives. This machine fully rebuilt.

OSBORNE PAPER MILL EQUIPMENT CORP.
Fulton, N. Y. **Tel. 2-4254**
M-30

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE—SIX HIGH PRESSURE boilers. Complete controls and equipment. Excellent condition. Immediate possession. A. W. Indeck, Wabash Boiler Division, 31 E. Congress St., Chicago, Ill. Telephone DElaware 7-9262. M-23

FOR SALE

FOR SALE—SLITTER AND REWINDER

30" Shear Meisiel Slitter. Can cut from ¼ inch width and up. Complete with 3 cutting shafts and 6 boots with male and female knives. Equipped with universal motor and 1" and 3" rewind shaft. Address Box 52-218 care Paper Trade Journal.
M-23

FOR SALE
INDIVIDUALLY OR AS A COMPLETE SECTION

34—Pusey & Jones 143" face x 48" diameter.
7—Beloit 137" face x 48" diameter.
13—Moore & White 132" face x 48" diameter.
Complete with 2 deck frames, gears, bearings, Johnson Steam Joints, Pinion gears. Spare heads and spare gears.
Can be inspected in operation at 200 feet per minute.
ROSS PAPER MACHINERY COMPANY
265 Passaic Street Newark, 4, N. J.
Tel. HUmboldt 2-2177
M-23

FOR SALE—45" Beck Sheeter with Elec. Eye; 48" Kidder Sheeter with Layboy; 62" Cameron Type 6; No. 7 Brightwood; ALSO MANY SET-UP AND FOLDING BOX MACHINES OF STANDARD MODELS. Write for listings. Address Box 52-168 care Paper Trade Journal. TF

FOR SALE—48" Schultz Automatic Rewinder, Model HY #244. Address Box 52-220 care Paper Trade Journal. M-23

FOR SALE—3000# Jones Beater presently run batch system perforated backfall and regulating box. Parts available for making continuous with 10# HP GE induction motor. Address Box 52-219 care Paper Trade Journal. M-23

BOILERS—Available now in Chicago. 2—500 HP 200 lb. HRT Boilers, 12 years old. Can be installed by maker. Complete with spreader, stoker and controls. Priced to sell. Address Box 52-215 care Paper Trade Journal. J-6

WANTED

WANTED TO BUY—A small second-hand laboratory beater, hand sheet making equipment and freeness tester. State: type and age of equipment and selling price: Option of examining before purchasing. Address Box 52-183 care Paper Trade Journal. TF

WANTED BY PAPER MILL—Two Bauer Refiners No. 300 or 400 with or without motors. Reply indicating condition. Address Box 52-216 care Paper Trade Journal. M-23

WANTED — Lightweight Specialties to be made by a Paper Mill with converting facilities. Address Box 52-212 care Paper Trade Journal. M-30

WANTED—Paper Machine suitable for production of 50 tons per day Kraft. For export. Address Box 52-222 care Paper Trade Journal. J-6

WANTED — SURPLUS
CHEMICALS — DYES — WAXES
PLASTICIZERS — SOLVENTS
PIGMENTS — OILS, etc.
CHEMICAL SERVICE CORPORATION
86-04 Beaver St., New York 5, N. Y.
M-23

WANTED

Experienced young man wants interest or partnership in going paper Converting business, preferably New York City or vicinity. Prepared to make substantial cash investment. Address Box 52-221 care Paper Trade Journal. M-23

FOR SALE

CARTON SEALER—1—Burt Machine Carton Sealer—will seal 300 cartons per hour. Various size cartons—with motors.

CHIPPERS—1—Carthage—4 knife chipper—88" disc—antifriction bearings, 19" spout.
1—8 knife chipper—Murray—88" disc.

COUCH ROLLS—3—24 x 72 rubber covered rolls—need covering.
2—72" couch rolls—rubber covered.
1—84" couch roll—needs covering.
1—24 x 86 rubber covered couch roll—like new.

CUTTERS—1—Farrell-Birmingham—wall-board or pulp rotary cutter—cuts sheets up to 8' long—112" wide—with enclosed drive and gear sheet changer—new condition.
1—Beloit duplex sheeter—112—114" wide—one knife assembly missing.
8 roll Hamblet back stand—Reeves drives—Moore & White layboy.

CYLINDER MOULDS—4—36 x 110.
1—30 x 64.
9—36 x 72 with couch rol's
2—36 x 84 cylinder moulds.

DRIVES—2—#4 Reeves drives.
1—Lewellen drive—same size as above.
5—E. D. Jones—right angle paper machine drives—from 7½ HP to 18 HP.
7—Bagley-Sewall mortise gear drives—open type.

DRYERS—65—Dryers—Size 24 x 46—complete section—nickel-plated—6" journals with CI frames, gears, bearings, steam joints.
4—Dryers—48 x 46—nickel-plated with gears, bearings, steam joints.
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1—Dryer—30 x 132.
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FELT GUIDE—1—Beloit Mechanical Felt Guide.

HYDRAULIC PULP PRESS—1—Pulp press with valves—pump.

JORDANS—1—Mammoth Type D Jordan—⅜" double steel filling.
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PRESS SECTION—1—Press section for laminator—3 sets press rolls—Iron/rubber rolls—approximately 10" dia. x 80" face.

PULPERS—2—Lannoye Pulpers—#2.

PUMPS—CENTRIFUGAL—STOCK & WHITE WATER—3—Fiber making process circulating pumps—3000 gpm—60' head—stainless steel shafts & impellers—SKF bearings.
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1—Peerless Pump—Model 4C135—New 1949.
1—Hayton Pump—Size 12—Fig. A—#236.
1—Beloit Stock or fan white water pump—250 gpm—size 10 x 12.
1—Hayton Chest Pump—Size 20".
2—Bagley-Sewall white water pumps—size 4 x 7.

PUMPS—PLUNGERS—1—Shartle Miami—8 x 18 duplex plunger pump.
2—Beloit—6 x 12—Bronze duplex plunger pumps.

REELS—1—2 drum upright Beloit reel—104" face with unwind stands—3 steel reel shafts.
1—Drum type reel—76" face.

REWINDERS—1—Cameron Type, 2 drum rewinder—60" face, drums, 8½" dia.—rider roll—antifriction bearings.
1—2 drum M & W rewinder—84" face.
1—4 drum M & W rewinder—84" face.

SCREENS—2—Tyler-Niagara chip screens.
9—Sandy Hill Packer flat screens—12 plates.
3—Bird #2 Rotary screens—SS vats.

SHREDDER—1—Mitts & Merrill schredder—25" opening—3 rows knives—#174G.

SLITTING UNIT—1—Shear-cut slitting unit for box board—120" wide—double shafts—2 sets slitters—6 per set.

SUCTION COUCH ROLL—1—Beloit—36" dia. x 156" suction couch roll—cantilever type—antifriction bearings.

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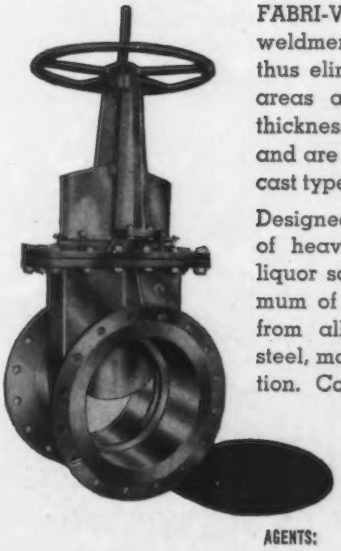

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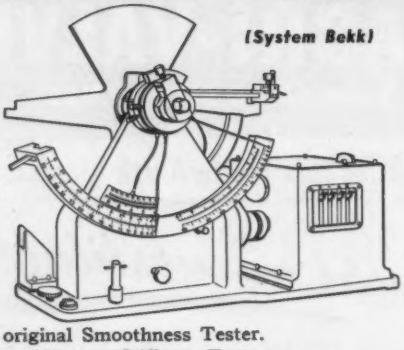

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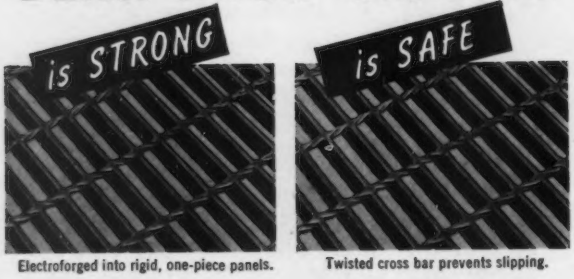

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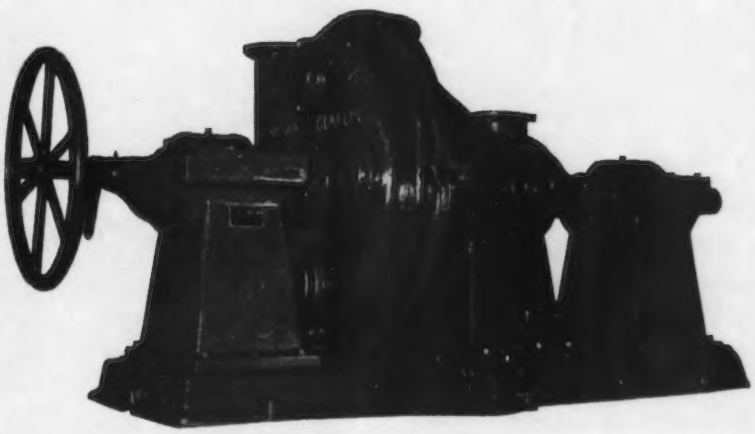

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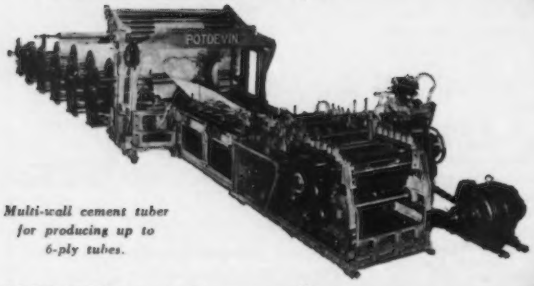

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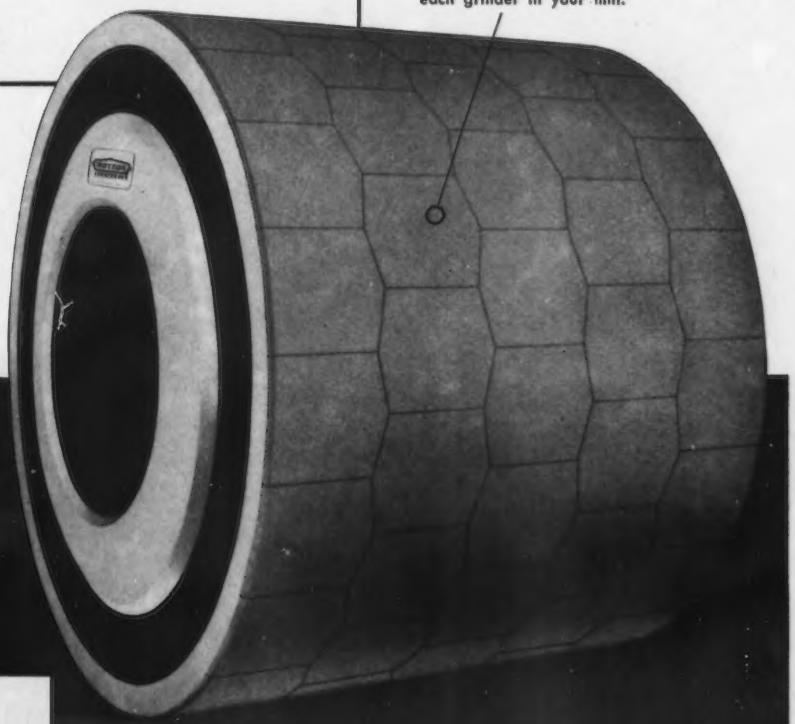

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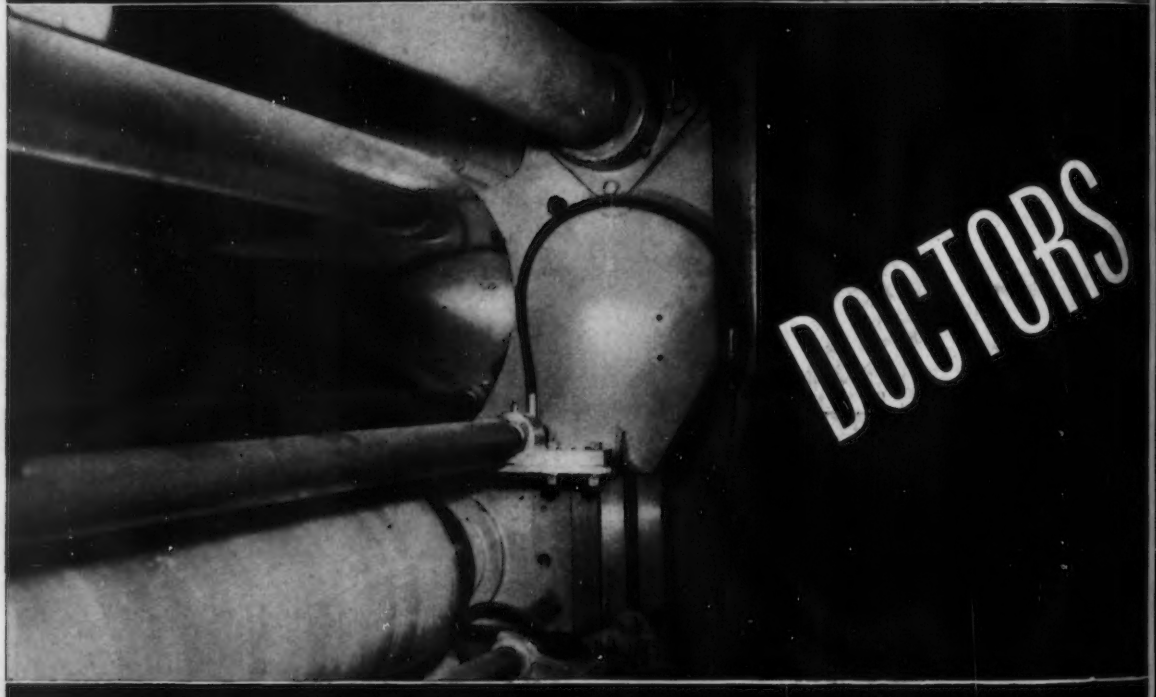

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